

# Q-LASFH59S

$n_d = 1.820980$

$n_e = 1.825572$

$v_d = 42.50$

$v_e = 42.25$

Glass code (d)	821425
Glass code (e)	826423

Spectral l.	Refractive idx
2.058	1.78242
1.970	1.78396
1.530	1.79121
1.129	1.79825
1.064	1.79962
t	1.80079
s	1.80550
A'	1.808860
r	1.812021
C	1.815228
C'	1.816134
He-Ne	1.816983
D	1.820810
d	1.820980
e	1.825572
F	1.834544
F'	1.835675
g	1.845457
h	1.854712
0.389	1.860446
i	1.870915

Coef. disp. form. (pwr ser.)	
A0	3.22581362E+00
A1	-1.28335027E-02
A2	-9.26420505E-05
A3	3.04553203E-02
A4	7.47766899E-04
A5	-1.21365984E-06
A6	1.90023535E-06
A7	0.00000000E+00
A8	0.00000000E+00

Partial dispersion	
F-C	0.019316
F'-C'	0.019541
C-t	0.014436
C-A'	0.006368
d-C	0.005752
e-C	0.010344
g-d	0.024477
g-F	0.010913
h-g	0.009255
i-g	0.025458
C'-t	0.015342
e-C'	0.009438
F'-e	0.010103
i-F'	0.035240

Relative partial dispersion	
C-t/F-C	0.7474
C-A'/F-C	0.3297
d-C/F-C	0.2978
e-C/F-C	0.5355
g-d/F-C	1.2672
g-F/F-C	0.5650
h-g/F-C	0.4791
i-g/F-C	1.3180
C'-t/F'-C'	0.7851
e-C'/F'-C'	0.4830
F'-e/F'-C'	0.5170
i-F'/F'-C'	1.8034

Deviation of relative partial disp.	
$\Delta PdC$	0.0014
$\Delta PgF$	-0.0081

Internal CC (80%/5%)	
360/314	
Color Code (80%/5%)	
400/315	
CCI	
B	0.00
G	0.82
R	0.87

Thermal properties	
CTE(-30,70) [1E-7/°C]	60
CTE(100,300) [1E-7/°C]	77
Tg [°C]	596
At [°C]	640
StP [°C]	552
AP [°C]	584
SP [°C]	700
Ht condct. [W/m·K]	0.722
Sp. heat [kJ/kg·K]	0.404
Ht diffus. [1E-6 m2/sec]	0.372

Chemical properties [class]	
Acid res. (surface)	2
Alkaline detergent res.	1
Climate resistance	1
Water res. (powder)	1
Acid res. (powder)	3

Mechanical properties	
Knoop hardness	615 (6)
Abrasion hardness	68
Young's mod. [GPa]	116.2
Shear mod. [GPa]	44.4
Poisson's ratio	0.308
Stress optical coef. [1E-5 nm/cm/Pa]	2.00

Internal trans. (10mm)	
$\lambda$ [nm]	$\tau$
280	-
290	-
300	-
310	-
320	0.13
330	0.33
340	0.53
350	0.69
360	0.80
370	0.88
380	0.920
390	0.950
400	0.961
420	0.976
440	0.983
460	0.987
480	0.992
500	0.995
550	0.997
600	0.998
650	0.998
700	0.998
800	0.997
900	0.995
1000	0.996
1200	0.997
1400	0.995
1600	0.991
1800	0.985
2000	0.973
2200	0.942
2400	0.80

Specific gravity	
4.81	

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.)	6.7	6.8	7.0	7.3	7.6	7.8	7.9	7.9	8.3	8.7	9.5	9.6	10.5	11.5	12.1		
60 to 80(ref.)	6.6	6.6	6.9	7.1	7.4	7.6	7.7	7.8	8.1	8.5	9.2	9.3	10.2	11.2	11.8		
40 to 60	6.4	6.4	6.7	6.9	7.2	7.4	7.5	7.5	7.8	8.2	8.9	9.0	9.9	10.8	11.4		
20 to 40	6.2	6.3	6.5	6.7	7.0	7.2	7.3	7.3	7.6	8.0	8.7	8.8	9.6	10.5	11.1		
0 to 20	6.1	6.2	6.4	6.6	6.8	7.0	7.1	7.2	7.5	7.8	8.5	8.6	9.4	10.3	10.8		
-20 to 0	6.0	6.1	6.3	6.5	6.7	6.9	7.0	7.1	7.3	7.7	8.3	8.4	9.2	10.0	10.6		
-40 to -20	6.0	6.1	6.3	6.5	6.7	6.9	7.0	7.0	7.3	7.6	8.3	8.3	9.1	9.9	10.4		
-60 to -40(ref.)	6.1	6.2	6.4	6.6	6.8	7.0	7.1	7.1	7.4	7.7	8.3	8.4	9.1	9.9	10.4		
-70 to -60(ref.)	6.3	6.4	6.6	6.8	6.9	7.1	7.2	7.3	7.5	7.8	8.4	8.5	9.2	9.9	10.4		

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	5.6	5.7	6.0	6.2	6.4	6.7	6.8	6.8	7.1	7.5	8.3	8.4	9.3	10.3	10.9		
60 to 80	5.4	5.4	5.7	5.9	6.2	6.4	6.5	6.5	6.8	7.2	8.0	8.1	9.0	9.9	10.5		
40 to 60	5.0	5.1	5.3	5.6	5.8	6.0	6.1	6.1	6.4	6.8	7.5	7.6	8.5	9.4	10.0		
20~40	4.7	4.7	5.0	5.2	5.4	5.6	5.7	5.7	6.0	6.4	7.1	7.2	8.0	8.9	9.4		
0 to 20	4.3	4.4	4.6	4.8	5.0	5.2	5.3	5.4	5.6	6.0	6.6	6.7	7.5	8.4	8.9		
-20 to 0	4.0	4.0	4.2	4.4	4.6	4.8	4.9	5.0	5.2	5.5	6.2	6.3	7.1	7.9	8.4		
-40 to -20	3.6	3.7	3.9	4.1	4.3	4.5	4.5	4.6	4.8	5.1	5.8	5.8	6.6	7.3	7.8		
-60 to -40	3.3	3.3	3.5	3.7	3.9	4.1	4.1	4.2	4.4	4.7	5.3	5.4	6.1	6.8	7.3		
-70 to -60	3.0	3.1	3.3	3.4	3.6	3.8	3.8	3.9	4.1	4.4	5.0	5.1	5.7	6.4	6.9		

Coef. disp. form. (frac. eq.)(ref.)	
P1	1.17189783E-01
Q1	8.45174088E+01
P2	3.58162927E-02
Q2	3.20065079E-02
P3	3.90078549E-01
Q3	5.73410961E-03

Fitting error of disp. form. $\sigma$ [1E-6]		
	Visible	Infrared
Power ser. eq.	0.6	6.4
Frac. eq. (ref.)	0.9	7.4

Prod. Freq. (A to D)	D
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Similar glass type			
OHARA	-	HOYA	-
C.D.G.M	-	SCHOTT	-

2022-7-1	Prod. Freq
2020-4-1	StP,AP,SP
2019-4-1	Transmittance