

# Q-LAFPH1S

$n_d = 1.743104$

$n_e = 1.746684$

$v_d = 49.44$

$v_e = 49.19$

Glass code (d)
743494
Glass code (e)
747492

Spectral l.	Refractive idx
2.058	1.70904
1.970	1.71064
1.530	1.71795
1.129	1.72452
1.064	1.72574
t	1.72675
s	1.73072
A'	1.733473
r	1.736020
C	1.738575
C'	1.739293
He-Ne	1.739963
D	1.742971
d	1.743104
e	1.746684
F	1.753606
F'	1.754473
g	1.761919
h	1.768884
0.389	1.773159
i	1.780885

Coef. disp. form. (pwr ser.)	
A0	2.97184328E+00
A1	-1.26569714E-02
A2	-1.62723834E-04
A3	2.32616036E-02
A4	4.03316269E-04
A5	6.85871554E-06
A6	3.74016912E-07
A7	0.00000000E+00
A8	0.00000000E+00

Partial dispersion	
F-C	0.015031
F'-C'	0.015180
C-t	0.011824
C-A'	0.005102
d-C	0.004529
e-C	0.008109
g-d	0.018815
g-F	0.008313
h-g	0.006965
i-g	0.018966
C'-t	0.012542
e-C'	0.007391
F'-e	0.007789
i-F'	0.026412

Relative partial dispersion	
C-t/F-C	0.7866
C-A'/F-C	0.3394
d-C/F-C	0.3013
e-C/F-C	0.5395
g-d/F-C	1.2517
g-F/F-C	0.5531
h-g/F-C	0.4634
i-g/F-C	1.2618
C'-t/F'-C'	0.8262
e-C'/F'-C'	0.4869
F'-e/F'-C'	0.5131
i-F'/F'-C'	1.7399

Deviation of relative partial disp.	
$\Delta PdC$	0.0018
$\Delta PgF$	-0.0084

Internal CC (80%/5%)	
343/298	

Color Code (80%/5%)	
370/300	

CCI	
B	-
G	-
R	-

Thermal properties	
CTE(-30,70) [1E-7/°C]	52
CTE(100,300) [1E-7/°C]	70
Tg [°C]	562
At [°C]	596
Ht condct. [W/m·K]	0.901
Sp. heat [kJ/kg·K]	0.542
diffus. [1E-6 m2/sec]	0.391

Chemical properties [class]	
Acid res. (surface)	6
Alkaline detergent res.	4
Climate resistance	1
Water res. (powder)	1
Acid res. (powder)	4

Mechanical properties	
Knoop hardness	581 (6)
Abrasion hardness	73
Young's mod. [GPa]	109.7
Shear mod. [GPa]	42.0
Poisson's ratio	0.306
Stress optical coef. [1E-5 nm/cm/Pa]	2.33

Internal trans. (10mm)	
$\lambda$ [nm]	$\tau$
280	0.00
290	0.00
300	0.07
310	0.28
320	0.50
330	0.66
340	0.77
350	0.86
360	0.910
370	0.946
380	0.967
390	0.979
400	0.985
420	0.991
440	0.994
460	0.996
480	0.999
500	0.999
550	0.999
600	0.999
650	0.999
700	0.999
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.999
1600	0.995
1800	0.984
2000	0.962
2200	0.902
2400	0.67

Specific gravity	
4.25	

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.)	7.6	7.7	7.9	8.1	8.3	8.5	8.5	8.6	8.9	9.2	9.8	9.9	10.6	11.3	11.8
60 to 80(ref.)	7.5	7.5	7.8	7.9	8.1	8.3	8.4	8.4	8.7	9.0	9.6	9.7	10.4	11.1	11.6
40 to 60	7.3	7.4	7.6	7.7	7.9	8.1	8.2	8.2	8.5	8.8	9.4	9.5	10.1	10.8	11.3
20 to 40	7.2	7.2	7.4	7.6	7.8	8.0	8.0	8.1	8.3	8.6	9.2	9.3	9.9	10.5	11.0
0 to 20	7.1	7.1	7.3	7.5	7.7	7.8	7.9	7.9	8.2	8.5	9.0	9.1	9.7	10.3	10.8
-20 to 0	7.0	7.1	7.3	7.4	7.6	7.8	7.8	7.9	8.1	8.4	8.9	9.0	9.6	10.2	10.6
-40 to -20	7.1	7.1	7.3	7.4	7.6	7.8	7.8	7.9	8.1	8.4	8.9	8.9	9.5	10.1	10.5
-60 to -40(ref.)	7.2	7.2	7.4	7.6	7.7	7.9	7.9	8.0	8.2	8.4	8.9	9.0	9.6	10.1	10.5
-70 to -60(ref.)	7.4	7.4	7.6	7.7	7.9	8.0	8.1	8.1	8.3	8.6	9.1	9.1	9.7	10.2	10.6

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	6.5	6.6	6.8	7.0	7.2	7.4	7.4	7.5	7.8	8.1	8.7	8.8	9.5	10.2	10.7
60 to 80	6.3	6.4	6.6	6.8	6.9	7.1	7.2	7.2	7.5	7.8	8.4	8.5	9.2	9.9	10.3
40 to 60	6.0	6.1	6.3	6.4	6.6	6.8	6.8	6.9	7.1	7.4	8.0	8.1	8.8	9.4	9.9
20~40	5.7	5.7	5.9	6.1	6.3	6.4	6.5	6.5	6.8	7.1	7.6	7.7	8.3	9.0	9.4
0 to 20	5.4	5.4	5.6	5.8	5.9	6.1	6.1	6.2	6.4	6.7	7.3	7.3	7.9	8.5	8.9
-20 to 0	5.1	5.1	5.3	5.4	5.6	5.8	5.8	5.9	6.1	6.3	6.9	6.9	7.5	8.1	8.5
-40 to -20	4.7	4.8	5.0	5.1	5.3	5.4	5.5	5.5	5.7	6.0	6.5	6.5	7.1	7.6	8.0
-60 to -40	4.4	4.5	4.7	4.8	4.9	5.1	5.1	5.2	5.4	5.6	6.1	6.2	6.7	7.2	7.6
-70 to -60	4.2	4.2	4.4	4.5	4.7	4.8	4.9	4.9	5.1	5.3	5.8	5.9	6.4	6.9	7.2

Coef. disp. form. (frac. eq.) (ref.)	
P1	1.07190484E-01
Q1	6.96573791E+01
P2	5.52725706E-02
Q2	2.22994441E-02
P3	3.41344693E-01
Q3	4.66344025E-03

Fitting error of disp. form. $\sigma$ [1E-6]		
	Visible	Infrared
Power ser. eq.	0.6	3.9
Frac. eq. (ref.)	0.6	4.4

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

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2019-4-1	Transmittance
2015-4-1	1st edition