

# S-FSL 5Y

Code(d) **487703**

Code(e) **489702**

Refractive Index $n_d$	<b>1.48749</b> 1.487490	Abbe Number $\nu_d$	<b>70.36</b>	Dispersion $n_F-n_C$	<b>0.006929</b>
Refractive Index $n_e$	1.489145	Abbe Number $\nu_e$	70.17	Dispersion $n_F-n_{C'}$	0.006971

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.46218
$n_{1970}$	1.97009	1.46761
$n_{1530}$	1.52958	1.47323
$n_{1129}$	1.12864	1.47778
$n_t$	1.01398	1.47915
$n_s$	0.85211	1.48138
$n_{A'}$	0.76819	1.48282
$n_r$	0.70652	1.48410
$n_C$	0.65627	1.48535
$n_{C'}$	0.64385	1.48569
$n_{\text{He-Ne}}$	0.6328	1.48601
$n_D$	0.58929	1.48743
$n_d$	0.58756	1.48749
$n_e$	0.54607	1.48915
$n_F$	0.48613	1.49228
$n_{F'}$	0.47999	1.49266
$n_{\text{He-Cd}}$	0.44157	1.49546
$n_g$	0.435835	1.49594
$n_h$	0.404656	1.49896
$n_i$	0.365015	1.50404
$n_{334}$	0.334148	1.50946
$n_{326}$	0.326106	1.51116

Constants of Dispersion Formula	
$A_1$	9.77409944E-01
$A_2$	2.10950834E-01
$A_3$	1.37142848E+00
$B_1$	5.57649364E-03
$B_2$	1.77000313E-02
$B_3$	1.49211443E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	3
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	2
Acid Resistance(Surface) Group SR	3.0
Phosphate Resistance PR	2.0

Mechanical Properties	
Young's Modulus E (GPa)	62.2
Rigidity Modulus G (GPa)	25.3
Poisson's Ratio $\sigma$	0.229
Knoop Hardness HK(Class)	530 5
Abrasion Aa	114

Partial Dispersions	
$n_C-n_t$	0.006201
$n_C-n_{A'}$	0.002523
$n_d-n_C$	0.002144
$n_e-n_C$	0.003799
$n_g-n_d$	0.008455
$n_g-n_F$	0.003670
$n_h-n_g$	0.003015
$n_i-n_g$	0.008099
$n_C-n_t$	0.006546
$n_e-n_{C'}$	0.003454
$n_{F'}-n_e$	0.003517
$n_i-n_{F'}$	0.011382

Relative Partial Dispersions	
$\theta_{C,t}$	0.8949
$\theta_{C,A'}$	0.3641
$\theta_{d,C}$	0.3094
$\theta_{e,C}$	0.5483
$\theta_{g,d}$	1.2202
$\theta_{g,F}$	0.5297
$\theta_{h,g}$	0.4351
$\theta_{i,g}$	1.1689
$\theta'_{C,t}$	0.9390
$\theta'_{e,C}$	0.4955
$\theta'_{F',e}$	0.5045
$\theta'_{i,F'}$	1.6328

※Refractive Indices of the wavelength nm can be calculated from 326 to 1129 nm by this constant.  
Use the appended list of the constants to calculate 1129-2325nm.

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0181
$\Delta\theta_{C,A'}$	0.0029
$\Delta\theta_{g,d}$	0.0016
$\Delta\theta_{g,F}$	0.0021
$\Delta\theta_{i,g}$	0.0331

Thermal Properties	
Strain Point StP (°C)	465
Annealing Point AP (°C)	502
Transformation Temperature Tg (°C)	500
Yield Point At (°C)	567
Softening Point SP (°C)	676
Expansion Coefficients (-30~+70°C)	89
$\alpha$ ( $10^{-7} \text{K}^{-1}$ ) (+100~+300°C)	97
Thermal Conductivity $\lambda$ W/(m·K)	1.00

Coloring			
$\lambda_{80}$	295	$\lambda_5$	270
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	298	$\lambda_{0.05}$	277

CCI		
B	G	R
0.00	0.00	0.00

Internal Transmittance		
$\lambda(\text{nm})$	$\tau$ 10mm	$\tau$ 25mm
240		
250		
260		
270		
280	0.19	0.01
290	0.61	0.29
300	0.86	0.68
310	0.954	0.89
320	0.984	0.961
330	0.993	0.983
340	0.997	0.993
350	0.998	0.995
360	0.998	0.996
365	0.999	0.997
370	0.999	0.998
380	0.999	0.998
390	0.999	0.998
400	0.999	0.999
420	0.999	0.999
440	0.999	0.999
460	0.999	0.999
480	0.999	0.999
500	0.999	0.999
550	0.999	0.999
600	0.999	0.999
650	0.999	0.998
700	0.999	0.999
800	0.999	0.999
900	0.999	0.997
1000	0.998	0.994
1200	0.997	0.992
1400	0.981	0.952
1600	0.991	0.977
1800	0.983	0.958
2000	0.968	0.921
2200	0.86	0.70
2400	0.85	0.67

Other Properties	
Photoelastic Constant $\beta$ nm/(cm $\cdot$ 10 $^5$ Pa)	2.87
Specific Gravity d	2.46
Remarks	

OHARA 22-04

OHARA Copyright© OHARA INC. All Rights Reserved.

※The name of the glass type is the model number assigned based on the main components of the composition: large, medium, small refractive index and serial number.

Temperature Coefficients of Refractive Index									
Range of Temperature (°C)	$\Delta n / \Delta T$ relative ( $10^{-6} \text{K}^{-1}$ )								
	t	C'	He-Ne	D	e	F'	g	i	
-40~-20	-1.2	-1.2	-1.2	-1.1	-1.1	-0.9	-0.7	-0.3	
-20~ 0	-1.2	-1.1	-1.1	-1.0	-1.0	-0.8	-0.6	-0.2	
0~20	-1.2	-1.0	-1.0	-0.9	-0.8	-0.7	-0.5	0.0	
20~40	-1.1	-0.9	-0.9	-0.8	-0.7	-0.6	-0.4	0.1	
40~60	-1.0	-0.8	-0.8	-0.7	-0.6	-0.5	-0.3	0.3	
60~80	-1.0	-0.7	-0.7	-0.6	-0.5	-0.3	-0.1	0.4	