

NANOCERAM™

NC-1

Code(d) **540517**

Code(e) **542514**

Refractive Index n_d	1.539 60 1.539 599	Abbe Number ν_d	51.71	Dispersion $n_F - n_C$	0.010 436
Refractive Index n_e	1.542 081	Abbe Number ν_e	51.41	Dispersion $n_{F'} - n_{C'}$	0.010 544

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.511 84
n_{1970}	1.970 09	1.516 71
n_{1530}	1.529 58	1.521 96
n_{1129}	1.128 64	1.526 65
n_t	1.013 98	1.528 23
n_s	0.852 11	1.531 01
$n_{A'}$	0.768 19	1.532 92
n_r	0.706 52	1.534 69
n_C	0.656 27	1.536 46
$n_{C'}$	0.643 85	1.536 96
n_{He-Ne}	0.632 80	1.537 42
n_D	0.589 29	1.539 51
n_d	0.587 56	1.539 60
n_e	0.546 07	1.542 08
n_F	0.486 13	1.546 90
$n_{F'}$	0.479 99	1.547 50
n_{He-Cd}	0.441 57	1.551 95
n_g	0.435 84	1.552 73
n_h	0.404 66	1.557 67
n_i	0.365 02	1.566 37

Constants of Dispersion Formula	
A_1	1.279 112 84E+00
A_2	5.105 481 43E-02
A_3	1.062 253 85E+00
B_1	8.982 058 94E-03
B_2	5.132 553 42E-02
B_3	1.273 344 30E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	1
Acid Resistance(Surface) Group SR	1.0
Phosphate Resistance PR	1.0

Mechanical Properties	
Young's Modulus E (GPa)	80.2
Rigidity Modulus G (GPa)	32.7
Poisson's Ratio σ	0.225
Knoop Hardness Hk[Class]	550 6
Abrasion Aa	86

Partial Dispersions	
$n_C - n_t$	0.008 236
$n_C - n_{A'}$	0.003 538
$n_d - n_C$	0.003 137
$n_e - n_C$	0.005 619
$n_g - n_d$	0.013 131
$n_g - n_F$	0.005 832
$n_h - n_g$	0.004 943
$n_i - n_g$	0.013 639
$n_{C'} - n_t$	0.008 733
$n_e - n_{C'}$	0.005 122
$n_{F'} - n_e$	0.005 422
$n_i - n_{F'}$	0.018 866

Relative Partial Dispersions	
$\theta_{C,t}$	0.789 2
$\theta_{C,A'}$	0.339 0
$\theta_{d,C}$	0.300 6
$\theta_{e,C}$	0.538 4
$\theta_{g,d}$	1.258 2
$\theta_{g,F}$	0.558 8
$\theta_{h,g}$	0.473 6
$\theta_{i,g}$	1.306 9
$\theta'_{C,t}$	0.828 2
$\theta'_{e,C'}$	0.485 8
$\theta'_{F,e}$	0.514 2
$\theta'_{i,F'}$	1.789 3

Anomalous dispersion	
$\Delta\theta_{C,t}$	-0.000 1
$\Delta\theta_{C,A'}$	0.000 5
$\Delta\theta_{g,d}$	0.000 9
$\Delta\theta_{g,F}$	0.001 0
$\Delta\theta_{i,g}$	0.014 9

Thermal Properties	
Strain Point StP (°C)	-
Annealing Point AP (°C)	-
Transformation Temperature Tg (°C)	653
Yield Point At (°C)	740
Softening Point SP (°C)	-
Expansion Coefficients (-30 °C ~ 70 °C)	74
α_t (10 ⁻⁷ K ⁻¹) (100 °C ~ 300 °C)	86
Thermal Conductivity λ (W/(m·K))	1.17

Coloring			
λ_{80}	605	λ_5	345
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	517	$\lambda_{0.05}$	343

CCI		
B	G	R
0.00	3.15	7.26

Internal Transmittance	
λ (nm)	τ_i (10mm)
280	
290	
300	
310	
320	
330	
340	0.02
350	0.14
360	0.33
370	0.50
380	0.62
390	0.69
400	0.73
420	0.77
440	0.78
460	0.78
480	0.78
500	0.79
550	0.82
600	0.87
650	0.919
700	0.952
800	0.977
900	0.983
1 000	0.985
1 200	0.989
1 400	0.985
1 600	0.987
1 800	0.985
2 000	0.984
2 200	0.954
2 400	0.958

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n_{rel} / \Delta T$ (10 ⁻⁶ K ⁻¹)						
	t	C'	He-Ne	D	e	F'	g
-40 ~ -20	3.7	4.1	4.1	4.3	4.4	4.8	5.2
-20 ~ 0	3.7	4.1	4.2	4.3	4.5	4.9	5.3
0 ~ 20	3.7	4.1	4.2	4.3	4.5	4.9	5.4
20 ~ 40	3.7	4.1	4.2	4.3	4.5	4.9	5.4
40 ~ 60	3.7	4.2	4.2	4.4	4.6	5.0	5.5
60 ~ 80	3.8	4.3	4.4	4.5	4.7	5.2	5.7

Other Properties	
Photoelastic Constant β (nm/(cm ³ 10 ⁵ Pa))	2.85
Specific Gravity d	2.55
Remarks	

OHARA 25-05

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※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.