NANOCERAM™
NC-1

Code(d) **540517**
Code(e) **542514**

Refractive Index	n_d	**1.53960** 1.539599	Abbe Number	ν_d	**51.71**	Dispersion	n_F-n_C	**0.010436**
Refractive Index	n_e	1.542081	Abbe Number	ν_e	51.41	Dispersion	$n_{F'}$-$n_{C'}$	0.010544

Refractive Indices		
λ(μm)		
n_{2325}	2.32542	1.51184
n_{1970}	1.97009	1.51671
n_{1530}	1.52958	1.52196
n_{1129}	1.12864	1.52665
n_t	1.01398	1.52823
n_s	0.85211	1.53101
$n_{A'}$	0.76819	1.53292
n_r	0.70652	1.53469
n_C	0.65627	1.53646
$n_{C'}$	0.64385	1.53696
n_{He-Ne}	0.6328	1.53742
n_D	0.58929	1.53951
n_d	0.58756	1.53960
n_e	0.54607	1.54208
n_F	0.48613	1.54690
$n_{F'}$	0.47999	1.54750
n_{He-Cd}	0.44157	1.55195
n_g	0.435835	1.55273
n_h	0.404656	1.55767
n_i	0.365015	1.56637

Constants of Dispersion Formula	
A_1	1.27911284E+00
A_2	5.10548143E-02
A_3	1.06225385E+00
B_1	8.98205894E-03
B_2	5.13255342E-02
B_3	1.27334430E+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	0.008236
n_C-$n_{A'}$	0.003538
n_d-n_C	0.003137
n_e-n_C	0.005619
n_g-n_d	0.013131
n_g-n_F	0.005832
n_h-n_g	0.004943
n_i-n_g	0.013639
$n_{C'}$-n_t	0.008733
n_e-$n_{C'}$	0.005122
$n_{F'}$-n_e	0.005422
n_i-$n_{F'}$	0.018866

Relative Partial Dispersions	
$\theta_{C,t}$	0.7892
$\theta_{C,A'}$	0.3390
$\theta_{d,C}$	0.3006
$\theta_{e,C}$	0.5384
$\theta_{g,d}$	1.2582
$\theta_{g,F}$	0.5588
$\theta_{h,g}$	0.4736
$\theta_{i,g}$	1.3069
$\theta'_{C',t}$	0.8282
$\theta'_{e,C'}$	0.4858
$\theta'_{F',e}$	0.5142
$\theta'_{i,F'}$	1.7893

Deviation of Relative Dispersions Δθfrom "Normal"	
$\Delta\theta_{C,t}$	-0.0001
$\Delta\theta_{C,A'}$	0.0005
$\Delta\theta_{g,d}$	0.0009
$\Delta\theta_{g,F}$	0.0010
$\Delta\theta_{i,g}$	0.0149

Thermal Properties		
Strain Point StP (℃)		-
Annealing Point AP (℃)		-
Transformation Temperature Tg (℃)		653
Yield Point At (℃)		740
Softening Point SP (℃)		-
Expansion Coefficients α (10^{-7} K^{-1})	(-30~+70℃)	74
	(+100~+300℃)	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 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
1000	0.985
1200	0.989
1400	0.985
1600	0.987
1800	0.985
2000	0.984
2200	0.954
2400	0.958

Temperature Coefficients of Refractive Index							
Range of Temperature (℃)	Δn/ΔT relative ($10^{-6}K^{-1}$)						
	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·10^5Pa)	2.85
Specific Gravity d	2.55
Remarks	

OHARA 22-04

※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.