

n_d 1.62004

d 36.33

n_F- n_C 0.017066n_e 1.62409

e 36.07

n_{F'}- n_{C'} 0.017302

Refractive Indices		
	(μm)	
n _{A'}	0.768195	1.60960
n _r	0.706519	1.61227
n _C	0.656273	1.61503
n _{C'}	0.643847	1.61581
n _{He-Ne}	0.63280	1.61655
n _D	0.589294	1.61989
n _d	0.587562	1.62004
n _e	0.546074	1.62409
n _F	0.486133	1.63210
n _{F'}	0.479992	1.63312
n _g	0.435835	1.64205
n _h	0.404656	1.65070

Abbe Number	
d	36.33
e	36.07
g	28.17

Constants of Dispersion Formula	
A ₀	2.54500231E+00
A ₁	-1.33739584E-03
A ₂	2.80115116E-02
A ₃	-5.41702056E-04
A ₄	1.50175374E-04
A ₅	-3.61707105E-06
A ₆	0.00000000E+00

Other Properties		
Specific Gravity	S G	3.61
Bubble Quality Group	B	1

Partial Dispersions	
n _d - n _C	0.005011
n _e - n _d	0.004046
n _g - n _d	0.022012
n _g - n _F	0.009957
n _d - n _{C'}	0.004226
n _{F'} - n _d	0.013076

Relative Partial Dispersions	
P _{d,C}	0.2936
P _{e,d}	0.2371
P _{g,F}	0.5834
P' _{d,C'}	0.2442
P' _{e,d}	0.2338
P' _{g,F'}	0.5165

Deviation of Relative Partial Dispersions P from "Normal"	
P _{g,d}	0.0000
P _{g,F}	0.0000

Thermal Properties		
Transformation Temperature	Tg ()	436
Yield Point	At ()	477
Expansion Coefficients	()	96

Chemical Properties	
Water Resistance (Powder) WR(P)	2
Acid Resistance (Powder) AR(P)	2
Acid Resistance (Surface) AR(S)	1

Mechanical Properties		
Knoop Hardness	H k	413(4)
Abrasion	A	174
Young's Modulus	E	
Rigidity Modulus	G	
Poisson's Ratio		
Photoelastic Constant		

Coloring		
80 / 5		36/32
70 / 5		

Internal Transmittance		
80 / 5		345/322
(nm)		10mm
280		
290		
300		
310		
320		0.01
330		0.30
340		0.71
350		0.900
360		0.945
370		0.970
380		0.980
390		0.988
400		0.991
420		0.995
440		0.996
460		0.999
480		0.999
500		0.999
550		0.999
600		0.999
650		0.999
700		0.999
800		
900		
1000		
1200		
1400		
1600		
1800		
2000		
2200		
2400		

n_d 1.60342 d 38.11 $n_F - n_C$ 0.015834 n_e 1.60717 e 37.85 $n_{F'} - n_{C'}$ 0.016042

Refractive Indices		
	(μm)	
$n_{A'}$	0.768195	1.59354
n_r	0.706519	1.59615
n_C	0.656273	1.59875
$n_{C'}$	0.643847	1.59949
n_{He-Ne}	0.63280	1.60018
n_D	0.589294	1.60328
n_d	0.587562	1.60342
n_e	0.546074	1.60717
n_F	0.486133	1.61459
$n_{F'}$	0.479992	1.61553
n_g	0.435835	1.62376
n_h	0.404656	1.63172

Abbe Number	
d	38.11
e	37.85
g	29.66

Constants of Dispersion Formula	
A_0	2.52772484E+00
A_1	-2.38190802E-02
A_2	1.02050370E-02
A_3	3.48057562E-03
A_4	-3.60361530E-04
A_5	2.05731116E-05
A_6	0.00000000E+00

Other Properties		
Specific Gravity	S G	3.45
Bubble Quality Group	B	1

Partial Dispersions	
$n_d - n_C$	0.004667
$n_e - n_d$	0.003751
$n_g - n_d$	0.020345
$n_g - n_F$	0.009178
$n_d - n_{C'}$	0.003932
$n_{F'} - n_d$	0.012110

Relative Partial Dispersions	
$P_{d,C}$	0.2947
$P_{e,d}$	0.2369
$P_{g,F}$	0.5796
$P'_{d,C'}$	0.2451
$P'_{e,d}$	0.2338
$P'_{g,F'}$	0.5133

Deviation of Relative Partial Dispersions P from "Normal"	
$P_{g,d}$	-0.0011
$P_{g,F}$	-0.0008

Thermal Properties		
Transformation Temperature	Tg ()	435
Yield Point	At ()	474
Expansion Coefficients	()	96

Chemical Properties	
Water Resistance (Powder) WR(P)	2
Acid Resistance (Powder) AR(P)	1
Acid Resistance (Surface) AR(S)	1

Mechanical Properties		
Knoop Hardness	H k	386(4)
Abrasion	A	167
Young's Modulus	E	
Rigidity Modulus	G	
Poisson's Ratio		
Photoelastic Constant		

Coloring		
80 / 5		35/32
70 / 5		

Internal Transmittance		
80 / 5		341/318
(nm)		10mm
280		
290		
300		
310		
320		0.11
330		0.55
340		0.83
350		0.936
360		0.966
370		0.981
380		0.985
390		0.990
400		0.995
420		0.996
440		0.997
460		0.998
480		0.999
500		0.999
550		0.999
600		0.999
650		0.999
700		0.999
800		
900		
1000		
1200		
1400		
1600		
1800		
2000		
2200		
2400		

n_d 1.67270

d 32.15

n_F- n_C 0.020921n_e 1.67765

e 31.92

n_{F'}- n_{C'} 0.021232

Refractive Indices		
	(μm)	
n _{A'}	0.768195	1.65994
n _r	0.706519	1.66325
n _C	0.656273	1.66661
n _{C'}	0.643847	1.66756
n _{He-Ne}	0.63280	1.66846
n _D	0.589294	1.67252
n _d	0.587562	1.67270
n _e	0.546074	1.67765
n _F	0.486133	1.68753
n _{F'}	0.479992	1.68879
n _g	0.435835	1.69991
n _h	0.404656	1.71076

Abbe Number	
d	32.15
e	31.92
g	24.72

Constants of Dispersion Formula	
A ₀	2.73599051E+00
A ₁	-2.72414957E-02
A ₂	1.39469595E-02
A ₃	4.88372822E-03
A ₄	-4.99741390E-04
A ₅	2.99608896E-05
A ₆	0.00000000E+00

Other Properties		
Specific Gravity	S G	4.09
Bubble Quality Group	B	1

Partial Dispersions	
n _d - n _C	0.006092
n _e - n _d	0.004948
n _g - n _d	0.027209
n _g - n _F	0.012380
n _d - n _{C'}	0.005138
n _{F'} - n _d	0.016094

Relative Partial Dispersions	
P _{d,C}	0.2912
P _{e,d}	0.2365
P _{g,F}	0.5917
P' _{d,C'}	0.2420
P' _{e,d}	0.2330
P' _{g,F'}	0.5235

Deviation of Relative Partial Dispersions P from "Normal"	
P _{g,d}	0.0019
P _{g,F}	0.0013

Thermal Properties		
Transformation Temperature	Tg ()	441
Yield Point	At ()	480
Expansion Coefficients	()	88

Chemical Properties	
Water Resistance (Powder) WR(P)	2
Acid Resistance (Powder) AR(P)	2
Acid Resistance (Surface) AR(S)	3

Mechanical Properties		
Knoop Hardness	H k	373(4)
Abrasion	A	179
Young's Modulus	E	
Rigidity Modulus	G	
Poisson's Ratio		
Photoelastic Constant		

Coloring		
80 / 5		38/34
70 / 5		

Internal Transmittance		
80 / 5		364/334
(nm)		10mm
280		
290		
300		
310		
320		
330		
340		0.15
350		0.55
360		0.81
370		0.909
380		0.958
390		0.983
400		0.998
420		0.999
440		0.999
460		0.999
480		0.999
500		0.999
550		0.999
600		0.999
650		0.999
700		0.999
800		0.998
900		0.999
1000		0.999
1200		0.999
1400		0.999
1600		0.999
1800		0.999
2000		0.990
2200		0.964
2400		0.951

n_d 1.68893

d 31.15

n_F- n_C 0.022120n_e 1.69416

e 30.91

n_{F'}- n_{C'} 0.022454

Refractive Indices		
	(μm)	
n _{A'}	0.768195	1.67543
n _r	0.706519	1.67895
n _C	0.656273	1.68250
n _{C'}	0.643847	1.68351
n _{He-Ne}	0.63280	1.68445
n _D	0.589294	1.68874
n _d	0.587562	1.68893
n _e	0.546074	1.69416
n _F	0.486133	1.70462
n _{F'}	0.479992	1.70596
n _g	0.435835	1.71775
n _h	0.404656	1.72931

Abbe Number	
d	31.15
e	30.91
g	23.90

Constants of Dispersion Formula	
A ₀	2.79885778E+00
A ₁	-3.71809306E-02
A ₂	7.63019059E-03
A ₃	7.23169098E-03
A ₄	-8.07384722E-04
A ₅	4.69666667E-05
A ₆	0.00000000E+00

Other Properties		
Specific Gravity	S G	4.22
Bubble Quality Group	B	1

Partial Dispersions	
n _d - n _C	0.006430
n _e - n _d	0.005229
n _g - n _d	0.028820
n _g - n _F	0.013130
n _d - n _{C'}	0.005424
n _{F'} - n _d	0.017030

Relative Partial Dispersions	
P _{d,C}	0.2907
P _{e,d}	0.2364
P _{g,F}	0.5936
P' _{d,C'}	0.2416
P' _{e,d}	0.2329
P' _{g,F'}	0.5251

Deviation of Relative Partial Dispersions P from "Normal"	
P _{g,d}	0.0021
P _{g,F}	0.0015

Thermal Properties		
Transformation Temperature	Tg ()	429
Yield Point	At ()	470
Expansion Coefficients	()	93

Chemical Properties	
Water Resistance (Powder) WR(P)	2
Acid Resistance (Powder) AR(P)	2
Acid Resistance (Surface) AR(S)	3

Mechanical Properties		
Knoop Hardness	H k	387(4)
Abrasion	A	185
Young's Modulus	E	
Rigidity Modulus	G	
Poisson's Ratio		
Photoelastic Constant		

Coloring		
80 / 5		38/34
70 / 5		

Internal Transmittance	
80 / 5	361/335
(nm)	10mm
280	
290	
300	
310	
320	
330	
340	0.11
350	0.51
360	0.79
370	0.908
380	0.955
390	0.980
400	0.993
420	0.999
440	0.999
460	0.999
480	0.999
500	0.999
550	0.999
600	0.999
650	0.999
700	0.999
800	0.998
900	0.999
1000	0.999
1200	0.999
1400	0.999
1600	0.999
1800	0.995
2000	0.992
2200	0.970
2400	0.962

n_d 1.75692 d 31.70 $n_F - n_C$ 0.023874 n_e 1.76259 e 31.46 $n_{F'} - n_{C'}$ 0.024237

Refractive Indices		
	(μm)	
$n_{A'}$	0.768195	1.74312
n_r	0.706519	1.74631
n_C	0.656273	1.74996
$n_{C'}$	0.643847	1.75103
n_{He-Ne}	0.63280	1.75205
n_D	0.589294	1.75671
n_d	0.587562	1.75692
n_e	0.546074	1.76259
n_F	0.486133	1.77383
$n_{F'}$	0.479992	1.77527
n_g	0.435835	1.78795
n_h	0.404656	1.80027

Abbe Number	
d	31.70
e	31.46
g	24.39

Constants of Dispersion Formula	
A_0	2.80963092E+00
A_1	1.14276691E-01
A_2	1.25106388E-01
A_3	-2.21708952E-02
A_4	2.91617555E-03
A_5	-1.35685507E-04
A_6	0.00000000E+00

Other Properties		
Specific Gravity	S G	4.58
Bubble Quality Group	B	1

Partial Dispersions	
$n_d - n_C$	0.006959
$n_e - n_d$	0.005674
$n_g - n_d$	0.031028
$n_g - n_F$	0.014113
$n_d - n_{C'}$	0.005885
$n_{F'} - n_d$	0.018352

Relative Partial Dispersions	
$P_{d,C}$	0.2915
$P_{e,d}$	0.2377
$P_{g,F}$	0.5911
$P'_{d,C'}$	0.2428
$P'_{e,d}$	0.2341
$P'_{g,F'}$	0.5230

Deviation of Relative Partial Dispersions P from "Normal"	
$P_{g,d}$	0.0000
$P_{g,F}$	-0.0001

Thermal Properties		
Transformation Temperature	Tg ()	494
Yield Point	At ()	526
Expansion Coefficients	()	64

Chemical Properties	
Water Resistance (Powder) WR(P)	1
Acid Resistance (Powder) AR(P)	3
Acid Resistance (Surface) AR(S)	5b

Mechanical Properties		
Knoop Hardness	H k	426(4)
Abrasion	A	216
Young's Modulus	E	
Rigidity Modulus	G	
Poisson's Ratio		
Photoelastic Constant		

Coloring		
80 / 5		41/35
70 / 5		

Internal Transmittance	
80 / 5	387/344
(nm)	10mm
280	
290	
300	
310	
320	
330	
340	
350	
360	0.12
370	0.45
380	0.73
390	0.87
400	0.939
420	0.988
440	0.999
460	0.999
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	0.999
1800	0.999
2000	0.984
2200	0.900
2400	0.78