



**Cargille Laboratories**  
**55 Commerce Rd - Cedar Grove, NJ 07009-1289**  
**Phone : 973-239-6633 - Fax : 973-239-6096 - Web : www.cargille.com**

Catalog # 1803

Typical Characteristics

Refractive Index Liquid      **Series AAA**  
Refractive Index              **1.31500**      at    589.3 nm      and      25      ° C

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Composition                      Perfluorocarbon and Chlorofluorocarbon ( not the types thought to affect the ozone )  
Appearance                      Colorless Liquid  
Odor                                      None  
Color Stability                      In Direct Sun: no visible change after 10 years  
Index Change Rate                Moderate : -0.00030 to +0.00009  
by Evaporation                    expected after 32 days with exposed surface area to volume ratio of 0.2 cm<sup>2</sup>/cc @ 25 °C

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Index at 20°C                      1.31668  
Pour Point                              < -20 °C  
Boiling Point                        > 215 °C ( 760 mm Hg )  
Flash Point                            None °C ( COC )  
Brix Value (Per ICUMSA)            NA  
Density                                1.934 g / cc at 25 °C  
Density Temp Coef                  -0.0021 g / cc / °C  
Coef of Thermal Expansion        0.0011 cc / cc / °C  
Thermal Conductivity                0.00021 cal / sec / cm<sup>2</sup> / °C - 1 cm thickness  
  
Viscosity                                14 cSt at 25 °C                                      28 cP at 25 °C  
Surface Tension                      18 dynes/cm at 25 °C

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Soluble                                Other Chlorofluorocarbons, Galden PFS2, Fluoroclean HE

Partly Soluble                      Most organic solvents

Insoluble                              Water

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Compatible                        10 Month Immersion at 25 °C: Acrylic, Cellulose Acetate, Epoxy, Mylar, Nylon, Polycarbonate, Polyester, Polyethylene, Polypropylene, Polystyrene, Polyurethane, Polyvinyl Chloride, Phenolic, Teflon, Latex, Neoprene, Silicone ( Sylgard 184, 3140 RTV ), and Fluorosilicone ( Silastic 730 RTV ) Rubbers ; Tygon F-4040-A, Tygothane, Brass, Copper, Steel

Incompatible                      Burna-S, Natural, and some Silicone Rubbers; Tygon S-50-HL, R-3603, B-44-3; Chlorotrifluoro Ethylene Polymers, Aluminum

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Refractive Index Liquid **Series AAA**  
 Refractive Index **1.31500** at 589.3 nm and 25 °C

Cauchy Coefficients  
 A 1.308148E+00 B 2.7158E+03 C -1.1675502E+08

Cauchy Equation at 25°C  $A + B / \lambda^2 + C / \lambda^4$  ( $\lambda$  = Wavelength in nm)

Wavelength (nm)	Refractive Index	Transmittance			
		0.1 mm	1 mm	1 cm	10 cm
225.0	-	-	-	-	-
240.0	1.32	99	93	47	0
250.0	1.32	100	95	63	1
270.0	1.32	100	99	87	25
290.0	1.32	100	99	93	49
308.0	1.32	100	100	96	66
355.0	1.322	100	100	98	82
365.0	1.322	100	100	99	89
406.0	1.3203	100	100	99	92
473.0	1.3180	100	100	100	98
532.0	1.3163	100	100	100	98
589.3	1.3150	100	100	100	98
632.8	1.3142	100	100	100	99
656.3	1.3138	100	100	100	99
790.0	1.3122	100	100	100	99
828.0	1.3119	100	100	100	95
981.0	1.311	100	100	100	95
1310.0	1.310	100	100	100	95
1550.0	1.309	100	100	98	84
2500.0	1.31	100	99	88	29
3700.0	1.31	97	73	4	0

( $n_F - n_C$ ) 0.0037

Abbe  $v_D$  84.5

Temp. Coefficient -0.000335  $dn_D/dt$  (15 - 35 °C)

Shelf Life: 5 Years from Date of Manufacture for Unopened Bottles, Half the Remaining Time after Opening