



**Cargille Laboratories**  
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Catalog # 1803

Typical Characteristics

Refractive Index Liquid      **Series AAA**  
Refractive Index              **1.32500**      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                      1.32668  
Pour Point                              < -20 °C  
Boiling Point                        > 215 °C ( 760 mm Hg )  
Flash Point                            None °C ( COC )  
Brix Value (Per ICUMSA)            NA  
Density                                1.930 g / cc at 25 °C  
Density Temp Coef                  -0.0020 g / cc / °C  
Coef of Thermal Expansion        0.0011 cc / cc / °C  
Thermal Conductivity               0.00023 cal / sec / cm<sup>2</sup> / °C - 1 cm thickness  
  
Viscosity                              15 cSt at 25 °C                              29 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 **1.32500** at 589.3 nm and 25 °C

Cauchy Coefficients  
 A 1.317878E+00 B 2.7816E+03 C -1.0707945E+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	1.33	99	92	44	0
250.0	1.33	100	95	61	1
270.0	1.34	100	98	85	20
290.0	1.34	100	99	92	42
308.0	1.34	100	99	95	58
355.0	1.333	100	100	97	77
365.0	1.333	100	100	98	86
406.0	1.3308	100	100	99	89
473.0	1.3282	100	100	100	97
532.0	1.3264	100	100	100	97
589.3	1.3250	100	100	100	97
632.8	1.3242	100	100	100	98
656.3	1.3238	100	100	100	98
790.0	1.3221	100	100	100	98
828.0	1.3217	100	100	100	96
981.0	1.321	100	100	100	96
1310.0	1.319	100	100	100	96
1550.0	1.319	100	100	98	85
2500.0	1.32	100	99	89	32
3700.0	1.32	97	75	6	0

( $n_F - n_C$ ) 0.0040

Abbe  $v_D$  81.8

Temp. Coefficient -0.000336  $dn_D/dt$  (15 - 35 °C)

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