



**Cargille Laboratories**  
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Catalog # 1803

Typical Characteristics

Refractive Index Liquid      **Series AAA**  
Refractive Index              **1.37500**      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                      1.37671  
Pour Point                              < -20 °C  
Boiling Point                        > 215 °C ( 760 mm Hg )  
Flash Point                            None °C ( COC )  
**Brix Value (Per ICUMSA)**              **27.5 at 20°C**  
Density                                1.911 g / cc at 25 °C  
Density Temp Coef                 -0.0018 g / cc / °C  
Coef of Thermal Expansion       0.0009 cc / cc / °C  
Thermal Conductivity              0.00035 cal / sec / cm<sup>2</sup> / °C - 1 cm thickness  
  
Viscosity                              16 cSt at 25 °C                              31 cP at 25 °C  
Surface Tension                      19 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 **1.37500** at 589.3 nm and 25 °C

Cauchy Coefficients  
 A 1.366530E+00 B 3.1105E+03 C -5.8701558E+07

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           | 1.40             | 99            | 89   | 31   | 0     |
| 250.0           | 1.40             | 99            | 94   | 53   | 0     |
| 270.0           | 1.40             | 100           | 97   | 75   | 6     |
| 290.0           | 1.40             | 100           | 98   | 84   | 17    |
| 308.0           | 1.39             | 100           | 99   | 89   | 31    |
| 355.0           | 1.388            | 100           | 99   | 94   | 53    |
| 365.0           | 1.387            | 100           | 100  | 97   | 70    |
| 406.0           | 1.3832           | 100           | 100  | 97   | 76    |
| 473.0           | 1.3793           | 100           | 100  | 99   | 93    |
| 532.0           | 1.3768           | 100           | 100  | 99   | 93    |
| 589.3           | 1.3750           | 100           | 100  | 99   | 95    |
| 632.8           | 1.3739           | 100           | 100  | 100  | 96    |
| 656.3           | 1.3734           | 100           | 100  | 100  | 96    |
| 790.0           | 1.3714           | 100           | 100  | 100  | 98    |
| 828.0           | 1.3709           | 100           | 100  | 100  | 97    |
| 981.0           | 1.370            | 100           | 100  | 100  | 97    |
| 1310.0          | 1.368            | 100           | 100  | 100  | 97    |
| 1550.0          | 1.368            | 100           | 100  | 99   | 93    |
| 2500.0          | 1.37             | 100           | 99   | 93   | 49    |
| 3700.0          | 1.37             | 99            | 86   | 23   | 0     |

( $n_F - n_C$ ) 0.0052

Abbe  $v_D$  72.0

Temp. Coefficient -0.000343  $dn_D/dt$  (15 - 35 °C)

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