

# CARGILLE LABORATORIES

55 Commerce Road • Cedar Grove • New Jersey • 07009 – 1289 USA  
 Ph: 973-239-6633 • Fax: 973-239-6096 • [CargilleLabs@cargille.com](mailto:CargilleLabs@cargille.com) • [www.Cargille.com](http://www.Cargille.com)

Immersion Oil Type 37LDF

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n (589.3nm) 37°C = 1.5150

## TYPICAL CHARACTERISTICS

<u>COMPOSITION</u> .....	Aliphatic and Alicyclic Hydrocarbons, Polybutenes Alpha Bromonaphthalene
<u>APPEARANCE</u> .....	Colorless Liquid
<u>COLOR STABILITY IN DIRECT SUN</u> .....	In direct sunlight will slowly darken, becoming light yellow after 1 month
<u>INDEX CHANGE RATE BY EVAPORATION</u> .....	Low: -0.00007 expected; exposed surface area to volume ratio of 0.2 cm <sup>2</sup> /cc @ 25°C for 32 days
<u>ODOR</u> .....	Characteristic
<u>FREEZING POINT</u> °C .....	< -11
<u>BOILING POINT</u> °C @ 760mm Hg .....	> 279
<u>FLASH POINT</u> °C C.O.C. ....	> 171
<u>DENSITY</u> g/cc @ 37°C .....	0.984
<u>COEF. OF THERM. EXP.</u> cc/cc/°C .....	0.0006
<u>VISCOSITY</u> @ 37°C .....	1250cSt <span style="float: right;">1230cP</span>
<u>FLUORESCENCE</u> @ 356nm .....	Very Low
<u>SOLUBLE:</u>	Carbon Tetrachloride, Diethyl Ether, Heptane, Methylene Chloride, Naphtha, Toluene, Turpentine, Xylene
<u>INSOLUBLE:</u>	Acetone, Ethanol, Water

COMPATIBLE: 1-month immersion at 25°C: Acrylic, Cellulose Acetate, Epoxy, Mylar, Nylon, Polycarbonate, Polyester, Polyethylene, Polypropylene, Polyurethane, Polyvinyl Chloride, Phenolic, Teflon, Neoprene, Fluorosilicone (Silastic 730 RTV), Silicone (Sylgard 184, 3140 RTV) Rubbers, Tygon F-4040-A, Tygothane, Aluminum, Copper, Brass, Steel; (tests done on one example of each).

INCOMPATIBLE: Latex Rubber, Polystyrene, Polyvinyl Toluene

CAUCHY EQUATION: Refractive index as a function of wavelength at 37.0°C

W = wavelength (nm)

$$n(W) = 1.497801 + (5.564307E+03) / W^2 + (1.424155E+08) / W^4$$

SOURCE OR SPECTRAL LINE	WAVELENGTH (nm)	REFRACTIVE INDEX 37°C	% TRANSMITTANCE 25°C		
			1 mm	1 cm	10 cm
near UV cut off	340	1.557	89	30	0
i ( Hg )	365	1.548	99	92	43
h ( Hg )	404.7	1.5371	100	95	60
F' ( Cd )	480	1.5246	100	99	90
F ( H )	486.1	1.5239	100	99	92
e ( Hg )	546.1	1.5181	100	100	97
D (Na D1, D2 mean)	589.3	1.5150	100	100	98
HeNe laser	632.8	1.5126	100	100	98
C' ( Cd )	643.9	1.5121	100	100	98
C ( H )	656.3	1.5115	100	100	98
Ruby Laser	694.3	1.5100	100	100	97
GaAs laser	840	1.5060	100	100	95
Nd: YAG laser	1064.8	1.503	100	96	66
Diode	1300	1.501	99	91	39
Diode	1550	1.500	98	82	14

  

n <sub>F</sub> – n <sub>C</sub>	=	0.0124
Abbe v <sub>D</sub> : (n <sub>D</sub> – 1)/(n <sub>F</sub> – n <sub>C</sub> )	=	41.5
Temp. coef: dn <sub>D</sub> /dt 15 - 35°C	=	-0.000344

The above values are typical for this liquid and are calculated from values typical of its components