

CARGILLE LABORATORIES

55 Commerce Road • Cedar Grove • New Jersey • 07009 – 1289 USA
 Ph: 973-239-6633 • Fax: 973-239-6096 • CargilleLabs@cargille.com • www.Cargille.com

Immersion Oil Type LDF

18-April-2018

n (589.3nm) 23°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 ² /cc @ 25°C for 32 days
<u>ODOR</u>	Characteristic
<u>FREEZING POINT</u> °C	< -14
<u>BOILING POINT</u> °C @ 760mm Hg	> 279
<u>FLASH POINT</u> °C C.O.C.	> 171
<u>DENSITY</u> g/cc @ 23°C	0.984
<u>COEF. OF THERM. EXP.</u> cc/cc/°C	0.0006
<u>VISCOSITY</u> @ 23°C	500cSt 492cP
<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 23.0°C

W = wavelength (nm)

$$n(W) = 1.49749 + (5.71032E+03) / W^2 + (1.24762E+08) / W^4$$

SOURCE OR SPECTRAL LINE	WAVELENGTH (nm)	REFRACTIVE INDEX 23°C	% TRANSMITTANCE 25°C		
			1 mm	1 cm	10 cm
near UV cut off	340	1.556	93	50	0
i (Hg)	365	1.548	99	92	43
h (Hg)	404.7	1.5371	99	95	60
F' (Cd)	480	1.5247	100	98	82
F (H)	486.1	1.5239	100	99	89
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	1.5120	100	100	98
C (H)	656.3	1.5115	100	100	98
Ruby Laser	694.3	1.5099	100	100	98
GaAs laser	840	1.5059	100	100	92
Nd: YAG laser	1064.8	1.503	100	99	90
Diode	1300	1.501	100	95	63
Diode	1550	1.500	99	86	22
$n_F - n_C$			=	0.0125	
Abbe $v_D: (n_D - 1)/(n_F - n_C)$			=	41.3	
Temp. coef: dn_D/dt 15 - 35°C			=	-0.000361	

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