

CARGILLE LABORATORIES

Immersion Oil Type HF
 n (589.3nm) 23°C = 1.5150
 TYPICAL CHARACTERISTICS

18-April-2018

<u>COMPOSITION</u>	Aliphatic and Alicyclic Hydrocarbons
<u>APPEARANCE</u>	Colorless liquid
<u>COLOR STABILITY IN DIRECT SUN</u>	In direct sunlight will slightly yellow after 14 years
<u>INDEX CHANGE RATE BY EVAPORATION</u>	Very Low: 0.00000 expected; exposed surface area to volume ratio of 0.2 cm ² /cc @ 25°C for 32 days
<u>ODOR</u>	Slight, characteristic
<u>FREEZING POINT</u> °C	< -4
<u>BOILING POINT</u> °C @ 760mm Hg	> 315
<u>FLASH POINT</u> °C C.O.C.	> 177
<u>DENSITY</u> g/cc @ 23°C	0.931
<u>COEF. OF THERM. EXP.</u> cc/cc/°C	0.0007
<u>VISCOSITY</u> @ 23°C	700cSt 651cP

SOLUBLE: Acetone, Carbon Tetrachloride, Diethyl Ether, Heptane, Methylene Chloride, Naphtha, Toluene, Turpentine, Xylene PARTLY SOLUBLE: Ethanol INSOLUBLE: Water

COMPATIBLE: 10-month immersion at 25°C: Acrylic, Cellulose Acetate, Epoxy, Mylar, Nylon, Polycarbonate, Polyester, Polyethylene, Polypropylene, Polystyrene, Polyurethane, Polyvinyl Chloride, Polyvinyl Toluene, Phenolic, Teflon, Neoprene, Fluorosilicone (Silastic 730 RTV), Silicone (Sylgard 184, 3140 RTV) Rubbers, Tygothane, Aluminum, Copper, Brass, Steel; (tests done on one example of each).

INCOMPATIBLE: Tygon F-4040-A, S-50-HL, R-3603, B-44-3, Latex Rubber

CAUCHY EQUATION: Refractive index as a function of wavelength at 23.0°C

W = wavelength (nm)

$$n(W) = 1.497785 + (5.864736E+03) / W^2 + (4.449869E+07) / W^4$$

SOURCE OR SPECTRAL LINE	WAVELENGTH (nm)	REFRACTIVE INDEX 23°C	% TRANSMITTANCE 23°C		
			1 mm	1 cm	10 cm
near UV cut off	310	1.564	68	2	0
i (Hg)	365	1.544	98	85	19
h (Hg)	404.7	1.5353	100	96	66
F' (Cd)	480	1.5241	100	99	90
F (H)	486.1	1.5234	100	99	91
e (Hg)	546.1	1.5180	100	100	95
D (Na D1, D2 mean)	589.3	1.5150	100	100	96
HeNe laser	632.8	1.5127	100	100	99
C' (Cd)	643.9	1.5122	100	100	99
C (H)	656.3	1.5116	100	100	99
Ruby Laser	694.3	1.5101	100	100	99
GaAs laser	840	1.5062	100	100	97
Nd: YAG laser	1064.8	1.503	100	95	60
Diode	1300	1.501	99	90	34
Diode	1550	1.500	99	83	16
n _F - n _C		=	0.0118		
Abbe v _D : (n _D - 1)/(n _F - n _C)		=	43.8		
Temp. coef: dn _D /dt 15 - 35°C		=	-0.000376		

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



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