

# CARGILLE LABORATORIES

Immersion Oil Type NVH  
n (589.3nm) 23°C = 1.5150

18-April-2018

## TYPICAL CHARACTERISTICS

<u>COMPOSITION</u> .....	Polybutenes and Hydrogenated Terphenyls
<u>APPEARANCE</u> .....	Colorless to light yellow
<u>COLOR STABILITY IN DIRECT SUN</u> .....	In direct sunlight will slightly darken in 1 day, slightly more after 4 months
<u>INDEX CHANGE RATE BY EVAPORATION</u> .....	Very Low: 0.00000 expected: Exposed surface area to volume ratio of 0.2 cm <sup>2</sup> /cc @ 25°C for 32 days
<u>ODOR</u> .....	Slight, characteristic
<u>POUR POINT</u> °C .....	5
<u>BOILING POINT</u> °C @ 760mm Hg .....	> 350
<u>FLASH POINT</u> °C C.O.C. ....	> 163
<u>DENSITY</u> g/cc @ 23°C .....	0.919
<u>COEF. OF THERM. EXP.</u> cc/cc/°C .....	0.0006
<u>VISCOSITY</u> @ 23°C .....	21,000cSt <span style="float: right;">19,299cP</span>

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

COMPATIBLE: 10 month immersion at 25°C: Acrylic, Cellulose Acetate, Epoxy, Mylar, Nylon, Polycarbonate, Polyester, Polyethylene, Polypropylene, Polyurethane, Polyvinyl Chloride, Phenolic, Teflon, Latex Rubber, 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: Polystyrene, Tygon S-50-HL, R-3603, B-44-3

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

W = wavelength (nm)

$$n(W) = 1.498750 + (5.440170E+03) / W^2 + (7.021602E+07) / W^4$$

SOURCE OR SPECTRAL LINE	WAVELENGTH (nm)	REFRACTIVE INDEX 23°C	% TRANSMITTANCE 25°C		
			1 mm	1 cm	10 cm
near UV cut off	350	1.548	74	5	0
i ( Hg )	365	1.544	93	48	0
h ( Hg )	404.7	1.5346	98	80	11
F' ( Cd )	480	1.5237	100	96	63
F ( H )	486.1	1.5230	100	96	65
e ( Hg )	546.1	1.5178	100	99	86
D (Na D1, D2 mean)	589.3	1.5150	100	99	92
HeNe laser	632.8	1.5128	100	100	95
C' ( Cd )	643.9	1.5123	100	100	98
C ( H )	656.3	1.5118	100	100	98
Ruby Laser	694.3	1.5103	100	100	98
GaAs laser	840	1.5066	100	100	99
Nd: YAG laser	1064.8	1.504	100	98	82
Diode	1300	1.502	99	93	48
Diode	1550	1.501	98	83	16
n <sub>F</sub> - n <sub>C</sub>	=	0.0113			
Abbe v <sub>D</sub> : (n <sub>D</sub> - 1)/(n <sub>F</sub> - n <sub>C</sub> )	=	47.7			
Temp. coef: dn <sub>D</sub> /dt 15 - 35°C	=	-0.00034			

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



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