

CARGILLE LABORATORIES

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Immersion Oil Type NVH

18-April-2018

n (589.3nm) 23°C = 1.5150

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 ² /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 19,299cP

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															
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">$n_F - n_C$</td> <td style="width: 10%; text-align: center;">=</td> <td style="width: 20%;">0.0113</td> <td style="width: 30%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>Abbe v_D: $(n_D - 1)/(n_F - n_C)$</td> <td style="text-align: center;">=</td> <td>47.7</td> <td></td> <td></td> </tr> <tr> <td>Temp. coef: dn_D/dt 15 - 35°C</td> <td style="text-align: center;">=</td> <td>-0.00034</td> <td></td> <td></td> </tr> </table>						$n_F - n_C$	=	0.0113			Abbe v_D : $(n_D - 1)/(n_F - n_C)$	=	47.7			Temp. coef: dn_D/dt 15 - 35°C	=	-0.00034		
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The above values are typical for this liquid and are calculated from values typical of its components