

**CARGILLE
FUSED SILICA MATCHING LIQUID CODE 50350**

JAN. 15, 2002

$$n(5893 \text{ \AA}) 25 \text{ }^\circ\text{C} = 1.4587$$

TYPICAL CHARACTERISTICS

<u>COMPOSITION</u>	Aliphatic and Alicyclic Hydrocarbons
<u>APPEARANCE</u>	Colorless liquid
<u>ODOR</u>	None
<u>COLOR STABILITY</u> in sun 10 years.....	No visible change
<u>INDEX CHANGE RATE BY EVAPORATION</u>	Very low: 0.00001 expected:
exposed surface area to volume ratio of 0.2 cm ² / cc @ 25 °C for 32 days.	
<u>POUR POINT</u> °C.....	< - 7
<u>BOILING POINT</u> °C @ 760mm Hg.....	> 262
<u>FLASH POINT</u> °C COC.....	> 138
<u>DENSITY</u> g/cc @ 25 °C.....	0.831
<u>DENSITY TEMP. COEF.</u> g/cc / °C.....	-0.0007
<u>COEF. OF THERM. EXP.</u> cc/cc / °C.	0.0008
<u>THERMAL CONDUCTIVITY</u>	
cal / sec / cm ² / °C – 1cm thickness..... 0.00024 (0.104 watts / meter / °K)	
<u>VISCOSITY</u> centistokes @ 25 °C.....	19 (ca. 31 @ 15 °C, 15 @ 35 °C)
<u>SURFACE TENSION</u> dynes / cm @ 25 °C.....	29
<u>SOLUBLE</u> : Carbon Tetrachloride, Ethyl Ether, Freon TF, Heptane, Methylene Chloride, Naphtha, Toluene, Turpentine, Xylene	
<u>PARTLY SOLUBLE</u> : Acetone ; <u>INSOLUBLE</u> : Water, Ethanol	
<u>COMPATIBLE</u> 10 month immersion @ 25 °C : Acrylic, Cellulose Acetate, Epoxy, Mylar, Nylon, Polycarbonate, Polyester, Polyethylene, Polypropylene, Polystyrene, Polyurethane, Polyvinyl Chloride, Phenolic, Teflon ; Neoprene, Fluorosilicone (Silastic 730 RTV), Silicone (Sylgard 184) Rubbers ; Tygon F-4040-A, Tygothane; Aluminum, Copper, Brass, Steel; (tests done on one example of each).	
<u>INCOMPATIBLE</u> : Latex, Silicone (3140 RTV) Rubbers; Tygon except F-4040-A	
<u>TOXICITY</u>	None (request MSDS)

CAUCHY EQUATION: refractive index as a function of wavelength at 25 °C

W = wavelength in angstroms (Å)

$$n(W) = 1.446902 + (398962.9) / W^2 + (3.757747E+11) / W^4$$

SOURCE OR SPECTRAL LINE	WAVELENGTH (angstroms)	REFRACTIVE INDEX		% TRANSMITTANCE 25 °C		
		25 °C		1mm	1 cm	10cm
near UV cut off	2250	1.54		48	0	0
excimer	2480	1.52		93	50	0
local dip	2700	1.51		89	31	0
excimer	3080	1.493		98	84	18
N laser	3370	1.485		100	98	86
i (Hg)	3650	1.4790		100	99	93
F (H)	4861	1.4645		100	100	95
e (Hg)	5461	1.4607		100	100	95
D (Na: D1, D2 mean)	5893	1.4587		100	100	95
HeNe laser	6328	1.4571		100	100	95
C (H)	6563	1.4564		100	100	99
GaAs laser	8400	1.4526		100	100	96
Nd: YAG laser	10648	1.450		99	95	57
Diode	13000	1.449		99	88	29
Diode	15500	1.449		98	81	12
$n_F - n_C$		=	0.0081			
Abbe $v_D : (n_D - 1) / (n_F - n_C)$		=	56.7			
Temp. Coef.: dn_D / dt 15-35 °C		=	-0.000386			

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