

REFRACTIVE INDEX LIQUID SERIES E

n(5893 Å) 25°C =1.5550

TYPICAL CHARACTERISTICS

COMPOSITION Triacetin and Ethyl Cinnamate
APPEARANCE Colorless to light yellow liquid
ODOR Fruity
COLOR STABILITY In sun: may slightly darken after 4 days;
 slightly more after 1 month; no significant change then after 10 years
INDEX CHANGE RATE BY EVAPORATION . Moderate: -0.00045 to -0.00074 expected:
 exposed surface area to volume ratio of 0.2 cm²/cc @ 25°C for 32 days
POUR POINT °C <7
BOILING POINT °C @ 760mm Hg >259
FLASH POINT °C COC >130
DENSITY g/cc @ 25°C 1.047
DENSITY TEMP. COEF. g/cc/°C -0.0009
COEF. OF THERM. EXP. cc/cc/°C 0.0008
VISCOSITY centistokes @ 25°C 10 (ca. 13 @ 15°C, 8 @ 35°C)
SURFACE TENSION dynes/cm @ 25°C .. 36
SOLUBLE: Acetone, Carbon Tetrachloride, Ethanol, Ethyl Ether, Freon TF,
 Methylene Chloride, Toluene, Xylene
PARTLY SOLUBLE: Heptane, Naphtha, Turpentine INSOLUBLE: Water
COMPATIBLE 3 week immersion @ 25°C: Mylar, Nylon, Polyester, Polyethylene,
 Polypropylene, Polyurethane, Phenolic, Teflon; Latex, Silicone, and
 Fluorosilicone Rubbers; Aluminum, Steel;
 (tests done on one example of each)
INCOMPATIBLE: Acrylic, Cellulose Acetate, Epoxy, Polycarbonate, Polystyrene,
 Polyvinyl Chloride; Neoprene; Tygon; may tarnish Copper and Brass
GEL FORMATION: may gel with age (very rare): 2 1/2 year shelf life
TOXICITY Low (request MSDS)

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

W = wavelength in angstroms (Å)

$$n(W) = 1.526055 + (666780)/W^2 + (1.175037E+13)/W^4$$

SOURCE OR SPECTRAL LINE	WAVELENGTH (angstroms)	REFRACTIVE INDEX 25°C	% TRANSMITTANCE 25°C		
			1mm	1cm	10cm
N laser	3370	1.676	64	1	0
i (Hg)	3650	1.642	99	92	43
h (Hg)	4047	1.6106	100	97	75
F' (Cd)	4800	1.5771	100	99	92
F (H)	4861	1.5753	100	99	94
e (Hg)	5461	1.5616	100	100	98
D (Na D1,D2 mean)	5893	1.5550	100	100	98
HeNe laser	6328	1.5500	100	100	98
C' (Cd)	6439	1.5490	100	100	98
C (H)	6563	1.5479	100	100	98
Ruby laser	6943	1.5449	100	100	99
GaAs laser	8400	1.5379	100	100	99
Nd:YAG laser	10648	1.533	100	98	86
Diode	13000	1.530	99	94	54
Diode	15500	1.529	99	89	31

$$n_F - n_C = 0.0274$$

$$\text{Abbe } v_D: (n_D - 1)/(n_F - n_C) = 20.2$$

$$\text{Temp. coef: } dn_D/dt \text{ 15-35°C} = -0.000493$$

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