

## REFRACTIVE INDEX LIQUID SERIES E

n( 5893 Å) 25°C = 1.6300

TYPICAL CHARACTERISTICS

COMPOSITION ..... Hydrogenated Terphenyl and  
1-Bromonaphthalene

APPEARANCE ..... Light yellow liquid

ODOR ..... Slight: unpleasant

COLOR STABILITY ..... In sun: may slightly darken after 1 day,  
becoming very dark after 4 months, and dark with precipitate after 6 years

INDEX CHANGE RATE BY EVAPORATION . Low: -0.00003 to +0.00003 expected:  
exposed surface area to volume ratio of 0.2 cm<sup>2</sup>/cc @ 25°C for 32 days

POUR POINT °C ..... <6

BOILING POINT °C @ 760mm Hg ..... >279

FLASH POINT °C CC ..... >113

DENSITY g/cc @ 25°C ..... 1.334

DENSITY TEMP. COEF. g/cc/°C ..... -0.0009

COEF. OF THERM. EXP. cc/cc/°C .... 0.0006

VISCOSITY centistokes @ 25°C ..... 10 (ca. 13 @ 15°C, 8 @ 35°C)

SURFACE TENSION dynes/cm @ 25°C .. 40

SOLUBLE: Acetone, Carbon Tetrachloride, Ethyl Ether, Freon TF, Heptane,  
Methylene Chloride, Naphtha, Toluene, Turpentine, Xylene

PARTLY SOLUBLE: Ethanol; INSOLUBLE: Water

COMPATIBLE 9 month immersion @ 25°C: Acrylic, Cellulose Acetate, Epoxy,  
Mylar, Nylon, Polyester, Polyethylene, Polypropylene, Polyurethane,  
Polyvinyl Chloride, Phenolic, Teflon; Silicone (Sylgard 184, 3140 RTV)  
and Fluorosilicone (Silastic 730 RTV) Rubbers; Tygothane; Aluminum, Steel  
(tests done on one example of each)

INCOMPATIBLE: Polycarbonate, Polystyrene, Latex, Neoprene, Tygon (all types  
except Tygothane), (Acrylic @ 55°C). May tarnish Copper and Brass

TOXICITY ..... Moderate in our experience (request MSDS)

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

W = wavelength in angstroms (Å)

$$n(W) = 1.595445 + ( 988234.2 )/W^2 + ( 7.3548E+12 )/W^4$$

SOURCE OR SPECTRAL LINE	WAVELENGTH (angstroms)	REFRACTIVE INDEX 25°C	% TRANSMITTANCE 25°C		
			1mm	1cm	10cm
near UV cut off	3500	1.725	50	0	0
i (Hg)	3650	1.711	80	10	0
h (Hg)	4047	1.6832	93	50	0
F' (Cd)	4800	1.6522	99	87	24
F (H)	4861	1.6504	99	88	27
e (Hg)	5461	1.6369	100	97	71
D (Na D <sub>1</sub> , D <sub>2</sub> mean)	5893	1.6300	100	98	82
HeNe laser	6328	1.6247	100	98	84
C' (Cd)	6439	1.6236	100	98	84
C (H)	6563	1.6224	100	98	86
Ruby laser	6943	1.6191	100	99	87
GaAs laser	8400	1.6109	100	99	90
Nd:YAG laser	10648	1.605	100	99	86
Diode	13000	1.602	99	94	51
Diode	15500	1.600	99	90	36

$n_F - n_C$  = 0.0281

Abbe  $v_D$ :  $(n_D - 1)/(n_F - n_C)$  = 22.4

Temp. coef:  $dn_D/dt$  15-35°C = -0.000454

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