

## REFRACTIVE INDEX LIQUID SERIES E

n( 5893 Å) 25°C = 1.5750

## 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 ..... 1.036

**DENSITY TEMP. COEF.** g/cc/°C ..... -0.0007

**COEF. OF THERM. EXP.** cc/cc/°C .... 0.0007

**VISCOSITY** centistokes @ 25°C ..... 70 (ca. 116 @ 15°C, 46 @ 35°C)

**SURFACE TENSION** dynes/cm @ 25°C .. 37

**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)

$$n(W) = 1.549192 + ( 796083.8 )/W^2 + ( 3.485804E+12 )/W^4$$

SOURCE OR SPECTRAL LINE	WAVELENGTH (angstroms)	REFRACTIVE INDEX 25°C	% TRANSMITTANCE 25°C		
			1mm	1cm	10cm
near UV cut off	3500	1.637	23	0	0
i (Hg)	3650	1.629	66	2	0
h (Hg)	4047	1.6108	91	38	0
F' (Cd)	4800	1.5903	99	88	27
F (H)	4861	1.5891	99	89	31
e (Hg)	5461	1.5798	100	96	67
D (Na D1,D2 mean)	5893	1.5750	100	98	82
HeNe laser	6328	1.5712	100	99	90
C' (Cd)	6439	1.5704	100	99	90
C (H)	6563	1.5696	100	99	94
Ruby laser	6943	1.5672	100	100	97
GaAs laser	8400	1.5612	100	100	98
Nd:YAG laser	10648	1.556	100	98	78
Diode	13000	1.554	99	91	38
Diode	15500	1.553	98	85	21

$n_F - n_C$  = 0.0196

Abbe  $v_D: (n_D - 1)/(n_F - n_C)$  = 29.4

Temp. coef:  $dn_D/dt$  15-35°C = -0.000425

CARGILLE LABORATORIES INC.

55 COMMERCE RD. CEDAR GROVE N.J. 07009-1289 U.S.A.

phone: (973)239-6633 Fax: (973)239-6096