

REFRACTIVE INDEX LIQUID SERIES E

n(5893 Å) 25°C = 1.6400

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 cm²/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 1.388

DENSITY TEMP. COEF. g/cc/°C -0.0009

COEF. OF THERM. EXP. cc/cc/°C 0.0006

VISCOSITY centistokes @ 25°C 7 (ca. 10 @ 15°C, 6 @ 35°C)

SURFACE TENSION dynes/cm @ 25°C .. 41

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)

$$n(W) = 1.603857 + (1023157) / W^2 + (8.059377E+12) / W^4$$

| SOURCE OR SPECTRAL LINE | WAVELENGTH (angstroms) | REFRACTIVE INDEX 25°C | % TRANSMITTANCE 25°C | | |
|----------------------------|---------------------------|--------------------------|----------------------|-----|------|
| | | | 1mm | 1cm | 10cm |
| near UV cut off | 3500 | 1.741 | 57 | 0 | 0 |
| i (Hg) | 3650 | 1.726 | 83 | 15 | 0 |
| h (Hg) | 4047 | 1.6964 | 94 | 53 | 0 |
| F' (Cd) | 4800 | 1.6635 | 99 | 86 | 23 |
| F (H) | 4861 | 1.6616 | 99 | 87 | 26 |
| e (Hg) | 5461 | 1.6472 | 100 | 97 | 72 |
| D (Na D1, D2 mean) | 5893 | 1.6400 | 100 | 98 | 82 |
| HeNe laser | 6328 | 1.6344 | 100 | 98 | 83 |
| C' (Cd) | 6439 | 1.6332 | 100 | 98 | 83 |
| C (H) | 6563 | 1.6320 | 100 | 98 | 84 |
| Ruby laser | 6943 | 1.6286 | 100 | 98 | 85 |
| GaAs laser | 8400 | 1.6200 | 100 | 99 | 88 |
| Nd:YAG laser | 10648 | 1.614 | 100 | 99 | 88 |
| Diode | 13000 | 1.610 | 99 | 94 | 54 |
| Diode | 15500 | 1.608 | 99 | 91 | 40 |

$n_F - n_C$ = 0.0296

Abbe v_D : $(n_D - 1) / (n_F - n_C)$ = 21.6

Temp. coef: dn_D / dt 15-35°C = -0.000459

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