AST 40BN CARGILLE 16-JAN-02

REFRACTIVE INDEX LIQUID SERIES E
n(5893 Å) 25°C =1.6000
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^2/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 1.172
DENSITY TEMP. COEF. g/cc/°C ..... -0.0008
COEF. OF THERM. EXP. cc/cc/°C 0.0007
VISCOSITY centistokes @ 25°C ..... 29 (ca. 44 @ 15°C, 18 @ 35°C)
SURFACE TENSION dynes/cm @ 25°C .. 38
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)

$$n(W) = 1.570218 + (883391.4)/W^2 + (5.238595E+12)/W^4$$

SOURCE OR SPECTRAL LINE	WAVELENGTH (angstroms)	REFRACTIVE INDEX 25°C	% TRANSMITTANCE 25°C 1mm	1cm	10cm
near UV cut off	3500	1.677	32	0	0
i (Hg)	3650	1.666	72	4	0
h (Hg)	4047	1.6437	92	43	0
F'(Cd)	4800	1.6184	99	87	26
F (H)	4861	1.6170	99	88	29
e (Hg)	5461	1.6057	100	96	69
D (Na D1,D2 mean)	5893	1.6000	100	98	82
HeNe laser	6328	1.5955	100	99	87
C'(Cd)	6439	1.5946	100	99	87
C (H)	6563	1.5936	100	99	90
Ruby laser	6943	1.5908	100	99	92
GaAs laser	8400	1.5838	100	99	94
Nd:YAG laser	10648	1.578	100	98	82
Diode	13000	1.576	99	92	44
Diode	15500	1.574	99	88	27

$n_F - n_C$ = 0.0234
Abbe v_D: $(n_D-1)/(n_F-n_C)$ = 25.6
Temp. coef: dn_D/dt 15-35°C = -0.000438

CARGILLE LABORATORIES INC.
55 COMMERCE RD. CEDAR GROVE N.J. 07009-1289 U.S.A.
phone: (973)239-6633 Fax: (973)239-6096