AST EC40 CARGILLE 16-JAN-02

REFRACTIVE INDEX LIQUID SERIES E
n(5893 Å) 25°C =1.5650
TYPICAL CHARACTERISTICS

COMPOSITION ..... Ethyl Cinnamate and Hydrogenated Terphenyl
APPEARANCE ..... Colorless to light yellow liquid
ODOR ..... Fruity
COLOR STABILITY ..... In sun: may slightly darken after 1 day; slightly more after 1 month; very dark with precipitate after 6 years
INDEX CHANGE RATE BY EVAPORATION . Moderate: -0.00024 to +0.00007 expected: exposed surface area to volume ratio of 0.2 cm^2/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 1.022
DENSITY TEMP. COEF. g/cc/°C ..... -0.0008
COEF. OF THERM. EXP. cc/cc/°C 0.0007
VISCOSITY centistokes @ 25°C ..... 35 (ca. 52 @ 15°C, 23 @ 35°C)
SURFACE TENSION dynes/cm @ 25°C .. 37
SOLUBLE: Acetone, Carbon Tetrachloride, Ethanol, Ethyl Ether, Freon TF, Heptane, Methylene Chloride, Naphtha, Toluene, Turpentine, Xylene
INSOLUBLE: Water
COMPATIBLE 10 month immersion @ 25°C: Cellulose Acetate, Mylar, Nylon, Polyester, Polyethylene, Polypropylene, Phenolic, Teflon; Latex, Silicone, and Fluorosilicone Rubbers; Aluminum, Brass, Steel (tests done on one example of each)
INCOMPATIBLE: Acrylic, Epoxy, Polycarbonate, Polystyrene, Polyurethane, Polyvinyl Chloride; Neoprene; Tygon; tarnishes Copper
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)
$n(W) = 1.538248 + (732500.2)/W^2 + (6.818332E+12)/W^4$

SOURCE OR SPECTRAL LINE	WAVELENGTH (angstroms)	REFRACTIVE INDEX 25°C	% TRANSMITTANCE 25°C 1mm	1cm	10cm
N laser	3370	1.656	13	0	0
i (Hg)	3650	1.632	77	8	0
h (Hg)	4047	1.6084	94	55	0
F'(Cd)	4800	1.5829	99	93	46
F (H)	4861	1.5815	99	93	49
e (Hg)	5461	1.5705	100	98	78
D (Na D1,D2 mean)	5893	1.5650	100	99	88
HeNe laser	6328	1.5608	100	99	94
C'(Cd)	6439	1.5599	100	99	94
C (H)	6563	1.5589	100	100	96
Ruby laser	6943	1.5564	100	100	98
GaAs laser	8400	1.5500	100	100	99
Nd:YAG laser	10648	1.545	100	98	81
Diode	13000	1.543	99	92	43
Diode	15500	1.541	99	87	24

$n_F - n_C$ = 0.0225
Abbe v_D: $(n_D-1)/(n_F-n_C)$ = 25.1
Temp. coef: dn_D/dt 15-35°C = -0.000452

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