AST TREC

CARGILLE
REFRACTIVE INDEX LIQUID SERIES E
n(5893 Å) 25°C =1.5400
TYPICAL CHARACTERISTICS

16-JAN-02

COMPOSITION ..... Triacetin and Ethyl Cinnamate
APPEARANCE ..... Colorless to light yellow liquid
ODOR ..... Fruity
COLOR STABILITY ..... In sun: may slightly darken after 4 days; slightly more after 1 month; no significant change then after 10 years
INDEX CHANGE RATE BY EVAPORATION . Moderate: -0.00045 to -0.00074 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 1.059
DENSITY TEMP. COEF. g/cc/°C ..... -0.0009
COEF. OF THERM. EXP. cc/cc/°C 0.0008
VISCOSITY centistokes @ 25°C ..... 11 (ca. 13 @ 15°C, 8 @ 35°C)
SURFACE TENSION dynes/cm @ 25°C .. 36
SOLUBLE: Acetone, Carbon Tetrachloride, Ethanol, Ethyl Ether, Freon TF, Methylene Chloride, Toluene, Xylene
PARTLY SOLUBLE: Heptane, Naphtha, Turpentine INSOLUBLE: Water
COMPATIBLE 3 week immersion @ 25°C: Mylar, Nylon, Polyester, Polyethylene, Polypropylene, Polyurethane, Phenolic, Teflon; Latex, Silicone, and Fluorosilicone Rubbers; Aluminum, Steel; (tests done on one example of each)
INCOMPATIBLE: Acrylic, Cellulose Acetate, Epoxy, Polycarbonate, Polystyrene, Polyvinyl Chloride; Neoprene; Tygon; may tarnish Copper and Brass
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)

$$n(W) = 1.51302 + (641950.8)/W^2 + (1.024233E+13)/W^4$$

SOURCE OR SPECTRAL LINE	WAVELENGTH (angstroms)	REFRACTIVE INDEX 25°C	% TRANSMITTANCE 25°C 1mm	1cm	10cm
N laser	3370	1.649	67	2	0
i (Hg)	3650	1.619	99	91	41
h (Hg)	4047	1.5904	100	97	72
F'(Cd)	4800	1.5602	100	99	91
F (H)	4861	1.5585	100	99	93
e (Hg)	5461	1.5461	100	100	98
D (Na D1,D2 mean)	5893	1.5400	100	100	98
HeNe laser	6328	1.5354	100	100	98
C'(Cd)	6439	1.5345	100	100	98
C (H)	6563	1.5334	100	100	98
Ruby laser	6943	1.5307	100	100	99
GaAs laser	8400	1.5242	100	100	99
Nd:YAG laser	10648	1.519	100	98	85
Diode	13000	1.517	99	94	54
Diode	15500	1.516	99	89	30

$n_F - n_C$ = 0.0251
Abbe v_D: $(n_D-1)/(n_F-n_C)$ = 21.5
Temp. coef: dn_D/dt 15-35°C = -0.000485

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