

**CARGILLE
OPTICAL GEL CODE 0607**

May 15, 2004

n (5893 Å) 25 °C = 1.457

TYPICAL CHARACTERISTICS

<u>COMPOSITION</u>	Aliphatic Hydrocarbons & Gelling Agents
<u>APPEARANCE</u>	Colorless to Slightly Yellow Gel
<u>ODOR</u>	None
<u>COLOR STABILITY</u>	In sun: may slightly yellow after 9 years
<u>INDEX CHANGE RATE BY EVAPORATION</u>	Very low: 0.0000 expected:
exposed surface area to volume ratio of 0.2 sq. cm / cc @ 25 °C for 32 days	
<u>FREEZING POINT</u> °C.....	-67
<u>BOILING POINT</u> °C @ 760mm Hg.....	> 416
<u>FLASH POINT</u> °C COC.....	> 245
<u>DENSITY</u> g/cc @ 25 °C.....	0.848
<u>DENSITY TEMP. COEF.</u> g/cc / °C.....	-0.0006
<u>COEF. OF THERM. EXP.</u> cc/cc / °C.....	0.0007
<u>VISCOSITY</u> @ 25 °C.....	Soft Gel
<u>OIL SEPARATION</u> 100 °C for 24 Hours, % by Weight	< 0.05
<u>WEIGHT LOSS</u> 100 °C for 24 Hours, %	< 0.05
<u>WATER IMMERSION</u>	Gel disperses
<u>PARTLY SOLUBLE</u> : Carbon Tetrachloride, Ethyl Ether, Freon TF, Heptane, Methylene Chloride, Naphtha, Toluene, Turpentine, Xylene	
<u>INSOLUBLE</u> : Acetone, Ethanol, Water	<u>CLEAN UP</u> : Wipe surfaces clean, then use soap and water.
<u>COMPATIBLE</u> 10 month immersion @ 25 °C: Acrylic, Cellulose Acetate, Epoxy, Mylar, Nylon, Polycarbonate, Polyester, Polyethylene, Polypropylene, Polystyrene, Polyurethane, Polyvinyl Chloride, Phenolic, Teflon; Silicone, and Fluorosilicone Rubber; Neoprene Rubber, Aluminum, Copper, Brass, and Steel; (tests done on one example of each)	
<u>INCOMPATIBLE</u> : Latex Rubber, Tygon (types: S-50-HL, R-3603, B-44-3)	
<u>TOXICITY</u>	Low (request MSDS)

CAUCHY EQUATION: refractive index as a function of wavelength at 25 °C

W = wavelength in angstroms (Å)

$$n (W) = 1.44503 + (440960) / W^2 + (-2.85878E+11) / W^4$$

SOURCE OR SPECTRAL LINE	WAVELENGTH (angstroms)	REFRACTIVE INDEX 25 °C	% TRANSMITTANCE 25 °C		
			1mm	1 cm	10cm
near UV cut off	3200	1.485	83	15	0
i (Hg)	3650	1.477	98	81	12
h (Hg)	4047	1.471	99	92	42
F? (Cd)	4800	1.464	100	98	78
F (H)	4861	1.463	100	98	79
e (Hg)	5461	1.459	100	99	86
D (Na: D1, D2 mean)	5893	1.457	100	99	90
HeNe laser	6328	1.456	100	99	92
C? (Cd)	6439	1.456	100	99	90
C (H)	6563	1.455	100	99	92
Ruby Laser	6943	1.454	100	100	98
GaAs laser	8400	1.451	100	100	99
Nd YAG laser	10648	1.449	100	95	61
Diode	13000	1.448	99	91	39
Diode	15500	1.447	98	80	11
$n_F - n_C$	=	0.008			
Abbe $v_D : (n_D - 1) / (n_F - n_C)$	=	57			
Temp. Coef: dn_D / dt 15-35 °C	=	-0.00035			

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