REFERENCES

Anthony, O. and Zana, R. (1994) Effect of temperature on the interactions between neutral polymers and a cationic and a nonionic surfactant in aqueous solutions. Langmuir, 10, 4043-4052.

Antonietti, M., Burger, C., and Thunemann, A. (1997) Polyelectrolyte-surfactant complexes: A new class of highly ordered polymer materials. TRIP Reviews, 5(8), 262-267.

Bahadur, P., Dubin, P., and Rao, Y.K. (1995) Complex formation between sodium dodecyl sulfate and poly(4-vinylpyridine N.oxide) Langmuir, 11, 1951-1955.

Bailey, F.E.Jr. and Koleske, J.B. (1976) Poly(Ethylene Oxide). Union Carbide Corporation, Chemicals and Plastics Technical Center, New York: Academic Press, p-48.

Boscher, F.L. and Ouivoron, C. (1983) Light scattering studies of hydroxyethylcellulose on water/nonionic surfactant binary mixtures: evidence for preferential solvation of polymer chains by surfactant micelles. Polymer Bulletin, 9, 533-536.

Brackman, J.C., Van Os, M., and Engberts, J.B.F.N. (1988) Polymer– nonionic micelle complexation: formation of poly(propylene oxide)– complexed n-octyl thioglucoside micelles. Langmuir, 4, 1266-1269.

Brackman, J.C. (1991) Sodium dodecyl sulfate induced enhancement of the viscosity and viscoelasticity of aqueous solutions of poly(ethylene oxide). A rheological study on polymer micelle interaction. Langmuir, 7, 469-472.

Brackman, J.C. and Engberts, J.B.F.N. (1991) Effect of water-soluble polymers on rodlike and spherical micelles formed from 2-alkylmalonate salts. Langmuir, 7, 46.

Brackman, J.C. and Engberts, J.B.F.N. (1992) Effect of surfactant charge on polymer-micelle interaction: n-dodecyldimethylamine. Langmuir, 8, 422-434.

Brackman, J.C. and Engberts, J.B.F.N. (1994) Interactions between water-soluble nonionic polymers and surfactant aggregates. In Craig A. Herb, and Robert K. Prud'homme. Structure and Flow in Surfactant Solutions. Washington D.C.: American Chemical Society, Chapter – 24.

Brown, W., Fundin, J., and Miguel, M.G. (1992) Poly(ethylene oxide)-sodium dodecylsulfate interactions studied using static and dynamic light scattering. Macromolecules, 25, 7192-7198.

Brown, W. (1996) Light Scattering: Principles and Development. Oxford: Clarendon Press.

Cabane, B.J. (1977) Structure of some polymer-detergent aggregates in water. Journal of Physical Chemistry, 81, 1639-1645.

Cabane, B. and Duplessix, R. (1982) Organization of surfactant micelles adsorbed on a polymer molecule in water: a neutron scattering study. Journal of Physics, 43, 1529.

Cabane, B. and Duplessix, R. (1985) Neutron scattering study of water-soluble polymers adsorbed on surfactant micelles. Colloids and Surface A: Physicochemical and Engineering Aspects, 13, 19.

Candau, S.J., Hirsch, E., Zana, R., and Delsanti, M. (1989) Rheological properties of semidilute and concentrated aqueous solutions of cetyltrimethylammonium bromide in the presence of potassium bromide. Langmuir, 5, 1225- 1229.

Cappelaere, E., Cressely, R., and Decruppe, J.P. (1995) Linear and non-linear rheological behavior of salt-free aqueous CTAB solutions. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 104, 353-374.

Carlsson, A., Karlstrom, G., and Lindman, B. (1989) Characterization of the interaction between a nonionic polymer and a cationic surfactant by the fourier transform NMR self-diffusion technique. Journal of Physical Chemistry, 93, 3673-3677.

Cates, M.E. (1990) Nonlinear viscoelasticity of wormlike micelles (and other reversibly breakable polymers). Journal of Physical Chemistry, 94, 371-375.

Cates, M.E. and Candau, S.J. (1990) Statics and dynamics of worm-like surfactant micelles. Journal of Physical Condensed Matter, 2, 6869-6892.

Chari, K., Antalek, B., Lin, M.Y., and Sinha, S.K. (1994) The viscosity of polymer-surfactant mixtures in water. Journal of Chemical Physics, 100(7), 5294-5300.

Chattopadhyay, A.K., and Mittal, K.L. (1996) Surfactants in Solution. Vol. 64, Surfactant science series, New York: Marcel Dekker.

Chu, B. (1991) Laser Light Scattering. Basic Principles and Practice. 2nd Ed., New York: Academic Press, Inc., p-85.

Chu, D. and Thomas, J.K. (1986) Effect of cationic surfactants on the conformational transition of poly(methacrylic acid). Journal of American Chemical Society, 108, 6270-6276.

Cohen, J., Priel, Z., and Rabin, Y. (1988) Viscosity of dilute polyelectrolyte solutions. Journal of Physical Chemistry, 88, 7111.

Copper, A.R. (1989) Determination of Molecular Weight. New York: A Wiley-Interscience Publication, John Wiley & Sons, p-181.

Cross, J. and Singer, E.J. (1994) Cationic Surfactants: Analytical and Biological Evaluation. Vol. 53, Surfactant Science Series, New York: Marcel Dekker.

Devanand, K. and Selser, J.C. (1991) A symptotic behavior and long-range interactions in aqueous solutions of poly(ethylene oxide). Macromolecules, 24, 5943-5947.

Feitosa, E., Brown, W., Vasilescu, M., and Vethamuthu, M.S. (1996) Effect of temperature on the interaction between the nonionic surfactant $C_{12}E_5$ and poly(ethylene oxide) investigated by dynamic light scattering and fluorescence methods. Macromolecules, 29, 6837-6846.

Ferry, J.D. (1970) Viscoelastic Properties of Polymers. 2nd Ed., New York: John Wiley & Sons, Inc., p-3.

Fishman, M.L. and Eirich, F.R. (1971) Interactions of aqueous poly(N-vinylpyrrolidone) with sodium dodecylsulfate. I. Equilibrium dialysis measurements. Journal of Physical Chemistry, 75, 3135-3140.

Flory, P.J. (1953) Principles of Polymer Chemistry. London, Cornell University Press.

Francois, J., Dayantis, J., and Sabbadin, J. (1985) Hydrodynamical behavior of the poly(ethylene oxide)-sodium dodecylsulphate complex. European Polymer Journal, 21, 165.

Fundin, J., Brown, W., and Vethamuthu, S. (1996) Poly(N,N,N-trimethylammonio)ethyl acrylate chloride salt (PCMA)-SDS complex formation in dilute aqueous solution: light scattering and time-resolved fluorescence quenching measurements. Macromolecules, 29, 1195-1203.

Fundin, J., Hansson, P., Brown, W., and Lidegran, I. (1997) Poly(acrylic acid)-cetyltrimethylammonium bromide interactions studied using dynamic and static light scattering and time-resolved fluorescence quenching. Macromolecules, 30, 1118-1126.

Gilyani, T. and Wolfram, E. (1985) Complex formation between ionic surfactants and polymers in aqueous solution. In Dubin, P. (Ed). Microdomains in polymer solutions. New York: Plenum, p-383.

Goddard, E.D. and Ananthapadmanabhan, K.P. (1993) Interactions of Surfactants with Polymers and Proteins. Boca Raton, Florida: CRC Press, p-395.

Greener, J., Constestable, B.A., and Bale, M.D. (1987) Interaction of anionic surfactants with gelatin: viscosity effects. Macromolecules, 20, 2490.

Herb, C.A. and Prud'homme, R.K. (1994) Structure and Flow Properties in Surfactant Solution. Washington D. C.: American Chemical Society.

Hiemenz, P.C. (1986) Principle of Colloid and Surface Chemistry. New York: Marcel Dekker, p-161.

Hoff, E., Nystrom, B., and Lindman, B. (2001) Polymer-surfactant interactions in dilute mixtures of a nonionic cellulose derivative and an anionic surfactant. Langmuir, 17, 28-34.

Holmberg, C., Nilsson, S., Singh, S.K., and Sundelof, L.O. (1992) Hydrodynamic and thermodynamic aspects of the SDS-EHEC-water system. Journal of Physical Chemistry, 96, 871-876.

Hormnirun, P., Sirivat, A., and Jamieson, A. M. (2000) Complex formation between hydroxypropylcellulose and hexadecyltrimethyl- ammonium bromide as studied by light scattering and viscometry. Polymer, 41, 2127.

Huggins, M.L. (1942) The viscosity of dilute solutions of long chain molecules. IV. Dependence on concentration. Journal of American Chemical Society, 64, 2716.

Isemura, T. and Imanishi, A. (1958) The dissolution of water-insoluble polymers in the surfactant solution. The polyelectrolyte-like behavior of the dissolved polymers. Journal of Polymer Science, 33, 337.

Imae, T. and Ikeda, S. (1987) Characteristics of rodlike micelles of cetyltrimethylammonium chloride in aqueous NaCl solutions: their flexibility and the scaling laws in dilute and semidilute regimes. Colloid and Polymer Science, 265, 1090-1098.

Jiang, W.H. and Han, S.J. (2000) Viscosity of nonionic polymer/anionic surfactant complexes in water. Journal of Colloid and Interface Science, 229, 1-5.

Kamenka, N., Burgaud, I., Zana, R., and Lindman, B. (1994) Electrical conductivity, self-diffusion, and fluorescence probe investigations of the interaction between sodium dodecyl sulfate and ethyl (hydroxyethyl) cellulose. Journal of Physical Chemistry, 98(27), 6785-6788.

Kaye, W. and Mc Daniel, J.B. (1974) Low-angle laser light scattering, rayleigh factors & depolarization ratios. Applied Optics, 13, 1934.

Kern, F., Lemarechal, P., Candau, S.J., and Cates, M. (1992) Rheological properties of semidilute and concentrated aqueous solutions of cetyltrimethylammonium bromide in the presence of potassium bromide. Langmuir, 8, 437-440.

Kirkwood, J. G. and Goldberg, R. J. (1950) Light scattering arising from composition fluctuations in multi-component systems. Journal of Chemical Physics, 18, 54-57.

Kroschwitz, J.I. (1996) Encyclopedia of Chemical Technology, Fourth Edition, Vol. 19, New York: A Wiley-Interscience Publication, John Wiley & Sons, p-705.

Lance-Gomez, E.T. and Ward, T.C. (1986) Viscoelasticity of poly(ethylene oxide). Journal of Applied Polymer Science, 31, 333-340.

Lange, R. (1994) Detergents and Cleaners: A Handbook for Formulators. Munich: Hanser Publishers.

Larson, R.G. (1999) The Structure and Rheology of Complex Fluids. New York: Oxford University Press.

Lindman, B., Carlsson, A., Karlstrom, G., and Malmsten, M. (1990) Nonionic polymers and surfactants – some anomalies in temperature dependence and in interactions with ionic surfactants. Advanced Colloid Interface Science, 32, 183.

Lindman, B. and Thalberg, K. (1993) In Goddard, E.D., and Ananthapadmanabhan, K.P. Interactions of Surfactants with Polymers and Proteins, Boca Raton, Florida: CRC Press, p-216.

Lomax, E.G. (1996) Amphoteric Surfactants. Vol. 59, 2nd Edition, Surfactant science series, New York: Marcel Dekker.

Makhloufi, R. and Cressely, R. (1992) Temperature dependence of the non-Newtonian viscosity of elongated micellar solutions. Colloid and Polymer Science, 270, 1035-1041.

Medeiros, G.M.M. and Costa, S.M.B. (1996) Premicellar aggregates in a mixed system of a surfactant (SDS) and polymer (EHEC). Colloids and Surfaces A: Physicochemical and Engineering Aspects, 119, 141-148.

Moroi, Y., Akisida, H., Saito, M., and Murata, R. (1977) Interactions between ionic surfactants and polyethylene oxide in relation to mixed micelle formation in aqueous solution. Journal of Colloid and Interface Science, 61, 233-238.

Murata, M. and Arai, H. (1973) The interaction between polymer and surfactant: the effect of temperature and added salt on the interaction between

polyvinylpyrrolidone and sodium dodecyl sulfate. Journal of Colloid and Interface Science, 44, 475-480.

Mya, K.Y., Jamieson, A.M., and Sirivat, A. (1999) Interactions between the nonionic surfactant and polyacrylamide studied by light scattering and viscometry. Polymer, 40, 5741-5749.

Nagarajan, B. and Kalpakci, B. (1985) Viscometric investigation of complexes between polyethylene oxide and surfactant micelles. In Dubin, P. (Ed). Microdomains in polymer solutions. New York: Plenum, p-371.

Nilsson, S. (1995) Interactions between water-soluble cellulose derivatives and surfactants. 1. The HPMC/SDS/Water system. Macromolecules, 28, 7837-7844.

Norwood, D.P., Minatti, E., and Reed, W.F. (1998) Surfactant/polymer assemblies: 1. Surfactant binding properties. Macromolecules, 31, 2957-2965.

Nystrom, B. and Lindman, B. (1995) Dynamic and viscoelastic properties during the thermal gelation process of anionic cellulose ether dissolved in water in the presence of ionic surfactant. Macromolecules, 28, 967-974.

Nystrom, B., Walderhaug, H., Hansen, F.K., and Lindman, B. (1995) Rheological behavior during thermoreversible gelation of aqueous mixtures of ethyl(hydroxyethyl)cellulose and surfactants. Langmuir, 11, 750-757.

Painter, P.C. and Coleman, M.M. (1994) Fundamentals of Polymer Science. Pennsylvania: Technomic Publishing Co. Inc., p-350.

Polik, W.F. and Burchard, W. (1983) Static light scattering from aqueous poly(ethylene oxide) solutions in the temperature range 20-90°C. Macromolecules, 16, 978-982.

Ponton, A., Schott, C., and Quemada, D. (1998) Rheological behavior of flexible elongated micelles: temperature effect in an isotropic phase. Colloids and Surface A: Physicochemical and Engineering Aspects, 145, 37-45.

Porter, M.R. (1994) Handbook of Surfactant. London: Chapman & Hall, p-57.

Raghavan, S.R. and Kaler, E.W. (2001) Highly viscoelastic wormlike micellar solutions formed by cationic surfactants with long unsaturated tails. Langmuir, 17, 300-306.

Rehage, H. and Hoffmann, H. (1988) Rheological properties of viscoelastic surfactant systems. Journal of Physical Chemistry, 92, 4172.

Rhein, L.D., Robbins, C.R., Fernee, K., and Cantore, R.F. (1986) Surfactant structure effects on swelling of isolated stratum corneum. Journal of Society of Cosmetic Chemistry, 37, 125.

Ruckenstein, E., Huber, G., and Hoffmann, H. (1987) Surfactant aggregation in the presence of polymers. Langmuir, 3, 382-387.

Ruela T.M., Voigt, U., Munk, P., and Webber, S.E. (2000) Observation of massive overcompensation in the complexation of sodium poly(styrenesulfonate) with cationic polymer micelles. Macromolecules, 33(26), 9612-9619.

Saito, S. and Kolloid, Z. (1957) In Brackman, J.C., and Engberts, J.B.F.N. (1993). Polymer-micelle interactions: physical organic aspects. Chemical Society Reviews, 85-92.

Saito, S. (1987) Polymer-surfactant interactions. In Schick, M.J. Nonionic Surfactants. New York: Marcel Dekker, p-881.

Schwuger, M.J. (1973) Mechanism of interaction between ionic surfactants and polyglycol ethers in water. Journal of Colloid Interface Science, 43, 491.

Shirahama, K., Tsujii, K., and Takagi, T. (1974) The binding equilibrium of sodium dodecyl sulfate to poly(ethylene oxide) in 0.1 M sodium chloride solution at 30°C. Colloid and Polymer Science, 252, 978-981.

Shikata, T., Hirata, H., and Kotaka, T. (1988) Micelle formation of detergent molecules in aqueous media. 2. Role of free salicylate ions on viscoelastic properties of aqueous cetyltrimethylammonium bromide-sodium salicylate solutions. Langmuir, 4, 354-359.

Stockmayer, W. H. (1950) Light scattering in multi-component systems. Journal of Chemical Physics, 18, 58-61.

Szmerekova, V. and Kralik, P. (1984) Interaction complexes between polymers and surfactants: I. Interactions of polyethylene oxide with surfactants studied by gel permeation chromatography. Journal of Chromatography, 285, 188-193.

Tam, K. C. and Tiu, C. (1989) Steady and dynamic shear properties of aqueous polymer solutions. Journal of Rheology, 33, 257.

Tanford, C. (1980) The Hydrophobic Effect: Formation of Micelles and Biological Membranes. 2nd Ed., New York: John Wiley & Sons.

Treiner, C. and Nguyen, D. (1990) Interactions of copper dodecyl sulfate aggregates with poly(ethylene oxide) or poly(vinylpyrrolidone). Journal of Physical Chemistry, 94, 2021-2026.

Turner, M.S. and Cates, M.E. (1991) Linear viscoelasticity of living polymers: a quantitative probe of chemical relaxation times. Langmuir, 7, 1590-1594.

Valstar, A., Almgren, M., Brown, W., and Vasilescu, M. (2000) The interaction of bovine serum albumin with surfactants studied by light scattering. Langmuir, 16, 922-927.

Wang, G. and Olofsson, G. (1995) Ethyl(hydroxyethyl)cellulose and ionic surfactants in dilute solution, calorimetric and viscosity study of the interaction with SDS and some cationic surfactants. Journal of Physical Chemistry, 99, 5588-5596.

Wang, G., Lindell, K., and Olofsson, G. (1997) On the thermal gelling of ethyl(hydroxyethyl) cellulose and sodium dodecylsulfate. Phase behavior and temperature scanning calorimetric response. Macromolecules, 30, 105-112.

Ward, J.B. and Sperandio, G.J. (1964) Cosmetic applications of polyvinyl alcohol. Journal of Society of Cosmetic Chemistry, 15, 32.

Witte, F.M. and Engberts, J.B.F.N. (1987) Perturbation of SDS and CTAB micelles by complexation with poly(ethylene oxide) and poly(propylene oxide). Journal of Organic Chemistry, 52, 4767-4772.

Whitte, F.M. and Engberts, J.B.F.N. (1988) An ESR spin probe study of micelle-polymer complexes. Poly(ethylene oxide)-poly(propyl oxide)-complexed sodium dodecyl sulfate and cetyltrimethylammonium bromide micelles. Journal of Organic Chemistry, 53, 3085.

Whitte, F.M. and Engberts, J.B.F.N. (1989) Micelle-polymer complexes: aggregation numbers, micellar rate effects and factors determining the complexation process. Colloids and Surface A: Physicochemical and Engineering Aspects, 36, 417.

Winnik, F.M., Winnik, M.A., and Tazuke, S. (1987) Interaction of hydroxypropylcellulose with aqueous surfactants: fluorescence probe studies and a look at pyrene-labeled polymer. Journal of Physical Chemistry, 91, 594-597.

Winnik, F.M. (1990) Interaction of fluorescent dye labeled (hydroxy-propyl)cellulose with nonionic surfactants. Langmuir, 6, 522-524.

Winnik, F.M. and Regismond, S.T.A. (1996) Fluorescence methods in the study of the interactions of surfactants with polymers. Colloids and Surfaces A, Physicochemical and Engineering Aspects, 118, 1-39.

Zana, R., Binana-Limbele', W., Kamenka, N., and Lindman, B. (1992) Ethyl(hydroxyethyl)cellulose – cationic surfactant interactions: electrical conductivity, self-diffusion, and time-resolved fluorescence quenching investigations. Journal of Physical Chemistry, 96, 5461-5465.

Zhang, K., Jonstromer, M., and Lindman, B. (1994) Interaction between nonionic micelles and a nonionic polymer studied by fourier transform NMR self-diffusion. Journal of Physical Chemistry, 98, 2459-2463.

Zugenmaier, P. and Aust, N. (1990) Rheological investigations on the interaction of cellulose derivatives with sodium dodecyl sulfate in aqueous solution. Makromolecular Chemistry. Rapid Communication, 11, 95-100.

APPENDICES

Appendix - 1

Binary System of PEO-Water Mixture

1.1 Data from viscosity measurement

(i) PEO ($M_w = 1 \times 10^5$ g/mol) in water

c_p (g/dL)	η_{sp}	η_{sp}	Std. deviation	$[\eta]$
0.2	1.1441	1.1420	± 0.002	
0.4	1.108	1.1110	± 0.002	
0.6	1.1116	1.1220	± 0.007	1.0263
0.8	1.1881	1.1995	± 0.008	
1.0	1.3662	1.3682	± 0.001	
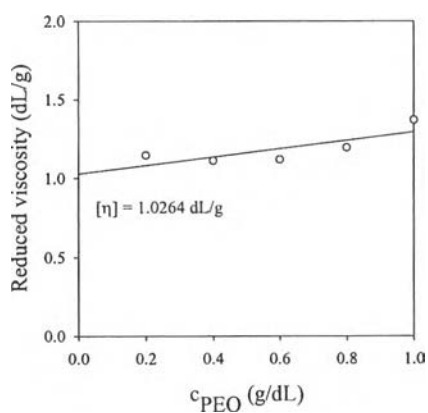
Figure 1.1 Reduced viscosity (η_{red}/c_p) as a function of PEO concentration for PEO ($M_w = 1 \times 10^5$) solution at $30°C$.

(ii) PEO ($M_w = 6 \times 10^5$ g/mol) in water (Figure is shown in Section 4.1.1.1)

c_p (g/dL)	η_{sp}	η_{sp}	Std. deviation	$[\eta]$
0.1	4.7355	4.6864	± 0.035	
0.15	4.7531	4.7531	± 0.000	
0.2	5.0375	4.9755	± 0.044	3.9986
0.3	5.7834	5.6772	± 0.075	
0.4	6.2552	6.3275	± 0.051	

(iii) PEO (M_w = 9x10^5 g/mol) in water

c_p (g/dL)	η_{sp}	η_{sp}	Std. deviation	[η]
0.05	5.6530	5.6600	± 0.005	
0.1	6.0190	6.1000	± 0.057	
0.2	7.1000	7.1235	± 0.017	5.4418
0.3	7.5564	7.5667	± 0.007	
0.4	7.9419	8.0112	± 0.049	

(iv) PEO (M_w = 4x10^6 g/mol) in water

c_p (g/dL)	η_{sp}	η_{sp}	Std. deviation	[η]
0.05	18.0500	17.9730	± 0.050	
0.10	18.4200	18.4345	± 0.010	
0.15	18.6760	18.8868	± 0.149	17.638
0.20	19.2135	19.1168	± 0.009	
0.25	19.6540	19.4670	± 0.132	
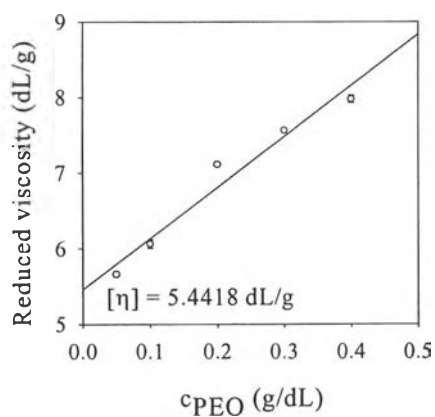
Figure 1.2 Reduced viscosity (η_{red}/c_p) as a function of PEO concentration for PEO (M_w = 9x10^5) solution at 30°C.
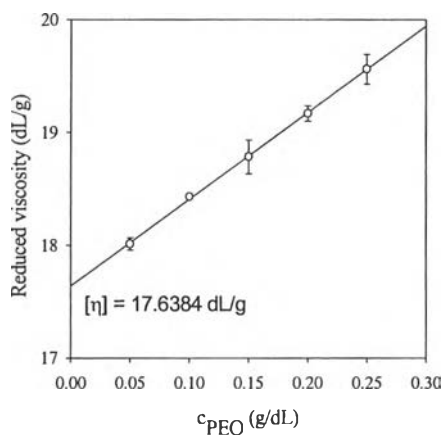
Figure 1.3 Reduced viscosity (η_{red}/c_p) as a function of PEO concentration for PEO ($M_w = 4 \times 10^6$) solution at 30°C.

1.2 Data from dynamic light scattering measurement

(i) PEO ($M_w = 1 \times 10^5$ g/mol) in water

c_p (g/dL)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)			S.D
0.2	70	18.64	347.45	17.5	17.2	17.5	± 0.17
	90	22.98	528.08	17.7	17.8	17.4	± 0.21
	110	26.61	708.09	18.0	17.7	17.8	± 0.15
	130	29.44	866.71	18.1	19.2	18.9	± 0.57
c_p (g/dL)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)			S.D
0.4	70	18.64	347.45	14.5	14.4	14.6	± 0.10
	90	22.98	528.08	15.0	15.4	15.4	± 0.23
	110	26.61	708.09	15.5	15.7	15.3	± 0.20
	130	29.44	866.71	16.0	16.2	15.7	± 0.25
c_p (g/dL)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)			S.D
0.6	70	18.64	347.45	12.3	13.1	12.7	± 0.40
	90	22.98	528.08	12.4	14.3	14.0	± 1.02
	110	26.61	708.09	14.9	14.5	15.5	± 0.50
	130	29.44	866.71	14.4	14.9	15.0	± 0.32

c_p (g/dL)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)			S.D
	70	18.64	347.45	9.8	10.1	10.2	± 0.21
	90	22.98	528.08	11.0	11.6	10.4	± 0.60
0.8	110	26.61	708.09	12.2	12.3	12.1	± 0.10
	130	29.44	866.71	13.0	13.1	12.6	± 0.26
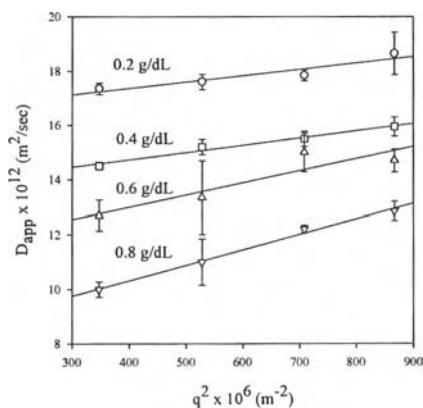
Figure 1.4 Apparent diffusion coefficient (D_{app}) as a function of square of scattering wave vector (q^2) at different PEO concentrations. PEO $M_w = 1 \times 10^5$ g/mol, PEO concentration: (O) 0.2 g/dL; (□) 0.4g/dL; (Δ) 0.6 g/dL; (∇) 0.8 g/dL.

c_p (g/dL)	$D_{cm} \times 10^{12}$ (m^2/s)		$D_0 \times 10^{12}$ (m^2/s)	R_h (nm)
0.2	15.1656	15.6656		
0.4	13.3966	13.8966	17.705	15.7
0.6	10.9597	11.4579		
0.8	8.8178	9.3178		
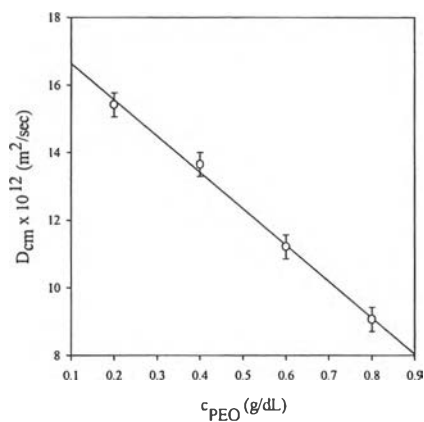
Figure 1.5 Center of mass diffusion coefficient vs. PEO concentration. PEO molecular weight = 1×10^5 g/mol.

(ii) PEO ($M_w = 6 \times 10^5$ g/mol) in water (Figures are shown in Section 4.1.2)

c_p (g/dL)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)			S.D
	70	18.64	347.45	8.1	7.9	7.9	± 0.12
0.1	90	22.98	528.08	8.5	8.3	8.4	± 0.10
	110	26.61	708.09	8.8	8.8	9.0	± 0.12
	130	29.44	866.71	9.0	9.1	9.2	± 0.10
c_p (g/dL)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)			S.D
	70	18.64	347.45	8.8	8.7	8.8	± 0.06
0.2	90	22.98	528.08	9.1	9.2	9.0	± 0.10
	110	26.61	708.09	9.4	9.4	9.3	± 0.06
	130	29.44	866.71	9.7	9.6	9.6	± 0.06
c_p (g/dL)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)			S.D
	70	18.64	347.45	8.6	8.6	8.6	± 0.00
0.3	90	22.98	528.08	9.1	9.4	9.3	± 0.15
	110	26.61	708.09	9.9	9.5	9.7	± 0.20
	130	29.44	866.71	10.1	9.9	10.0	± 0.10

c_p (g/dL)	θ (angle)	q x 10^3 (m^{-1})	q^2 x10^6 (m^{-2})	D_{app} x 10^{12} (m^2/s)			S.D
0.4	70	18.64	347.45	10.3	10.1	10.8	± 0.36
	90	22.98	528.08	10.7	11.0	10.4	± 0.30
	110	26.61	708.09	11.6	11.6	11.0	± 0.35
	130	29.44	866.71	11.2	11.4	11.6	± 0.20
c_p (g/dL)	θ (angle)	q x 10^3 (m^{-1})	q^2 x10^6 (m^{-2})	D_{app} x 10^{12} (m^2/s)			S.D
0.5	70	18.64	347.45	8.0	7.5	8.5	± 0.50
	90	22.98	528.08	9.1	9.4	9.4	± 0.17
	110	26.61	708.09	9.7	9.4	10.0	± 0.30
	130	29.44	866.71	9.7	9.8	9.9	± 0.10

c_p (g/dL)	D_{cm} x 10^{12} (m^2/s)		D_0 x 10^{12} (m^2/s)	R_h (nm)
0.2	7.2555	7.5894		
0.4	8.1731	8.5472		
0.6	8.6992	9.1325	6.8370	42.5
0.8	8.7682	9.7214		
1.0	9.8493	10.8493		

(iii) PEO (M_w = 9x10^5 g/mol) in water

c_p (g/dL)	θ (angle)	q x 10^3 (m^{-1})	q^2 x10^6 (m^{-2})	D_{app} x 10^{12} (m^2/s)			S.D
0.05	70	18.64	347.45	7.7	7.3	7.3	± 0.23
	90	22.98	528.08	8.2	8.1	8.1	± 0.06
	110	26.61	708.09	8.6	8.7	8.8	± 0.10
	130	29.44	866.71	8.6	8.9	8.6	± 0.17
c_p (g/dL)	θ (angle)	q x 10^3 (m^{-1})	q^2 x10^6 (m^{-2})	D_{app} x 10^{12} (m^2/s)			S.D
0.1	70	18.64	347.45	7.3	7.8	8.4	± 0.55
	90	22.98	528.08	8.4	8.9	8.7	± 0.25
	110	26.61	708.09	8.9	8.8	9.0	± 0.10
	130	29.44	866.71	9.1	9.0	9.0	± 0.06

| c_p (g/dL)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)			S.D
0.2	70	18.64	347.45	8.7	9.2	8.9	± 0.25
	90	22.98	528.08	9.1	9.3	9.6	± 0.20
	110	26.61	708.09	9.9	10.1	10.2	± 0.15
	130	29.44	866.71	10.3	10.1	10.1	± 0.12
c_p (g/dL)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)			S.D
0.3	70	18.64	347.45	11.1	11.1	10.9	± 0.12
	90	22.98	528.08	11.5	11.3	11.4	± 0.10
	110	26.61	708.09	11.8	11.8	11.7	± 0.06
	130	29.44	866.71	12.0	12.2	12.2	± 0.12
c_p (g/dL)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)			S.D
0.4	70	18.64	347.45	12.5	12.9	13.1	± 0.31
	90	22.98	528.08	12.9	13.4	13.2	± 0.25
	110	26.61	708.09	13.6	13.4	13.2	± 0.20
	130	29.44	866.71	13.4	13.6	13.7	± 0.15
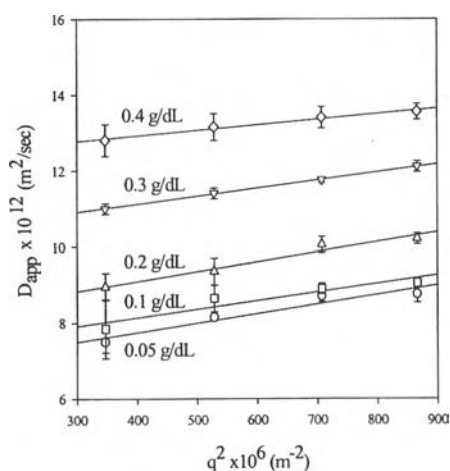
Figure 1.6 Apparent diffusion coefficient (D_{app}) as a function of square of scattering wave vector (q^2) at different PEO concentrations. PEO M_w = 9x10^5 g/mol, PEO concentration: (O) 0.05 g/dL; (□) 0.1 g/dL; (Δ) 0.2 g/dL; (∇) 0.3 g/dL; and (◊) 0.4 g/dL.

c_p (g/dL)	D_{cm} x 10^{12} (m^2/s)		D_0 x 10^{12} (m^2/s)	R_h (nm)
0.05	6.3055	7.1855		
0.1	6.8040	7.6840		
0.2	7.6212	8.5012	5.5715	49.8
0.3	9.8362	10.7162		
0.4	11.9001	12.7801		
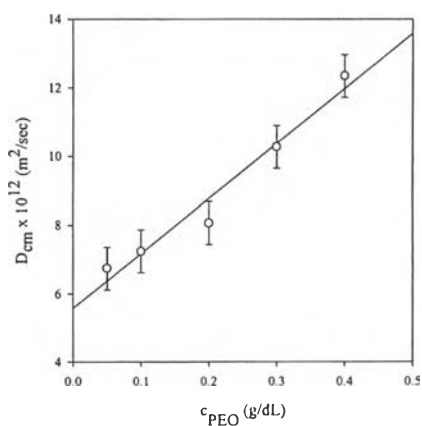
Figure 1.7 Center of mass diffusion coefficient vs. PEO concentration. PEO molecular weight = $9x10^5$ g/mol.

1.3 Data from static light scattering measurement

(i) M_w = $1x10^5$ g/mol

0.2 g/dL PEO in water

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	Kc/R_θ x 10^6
30	0.5236	0.0670	1.103
40	0.6981	0.1170	1.205
50	0.8727	0.1786	1.286
60	1.0472	0.2500	1.460
70	1.2217	0.3290	1.649
80	1.3963	0.4132	1.803
90	1.5708	0.5000	2.080
100	1.7453	0.5868	2.054
110	1.9199	0.6710	2.459
120	2.0944	0.7500	2.463

0.3 g/dL PEO in water

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	1.446
40	0.6981	0.1170	1.420
50	0.8727	0.1786	1.550
60	1.0472	0.2500	1.610
70	1.2217	0.3290	1.806
80	1.3963	0.4132	2.029
90	1.5708	0.5000	2.281
100	1.7453	0.5868	1.236
110	1.9199	0.6710	1.774
120	2.0944	0.7500	3.244

0.4 g/dL PEO in water

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	1.318
40	0.6981	0.1170	1.451
50	0.8727	0.1786	1.531
60	1.0472	0.2500	1.731
70	1.2217	0.3290	1.959
80	1.3963	0.4132	2.328
90	1.5708	0.5000	2.587
100	1.7453	0.5868	3.440
110	1.9199	0.6710	4.226
120	2.0944	0.7500	-

0.5 g/dL PEO in water

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	1.457
40	0.6981	0.1170	1.545
50	0.8727	0.1786	1.689
60	1.0472	0.2500	1.900
70	1.2217	0.3290	2.125
80	1.3963	0.4132	2.419
90	1.5708	0.5000	2.846
100	1.7453	0.5868	3.010
110	1.9199	0.6710	4.716
120	2.0944	0.7500	-
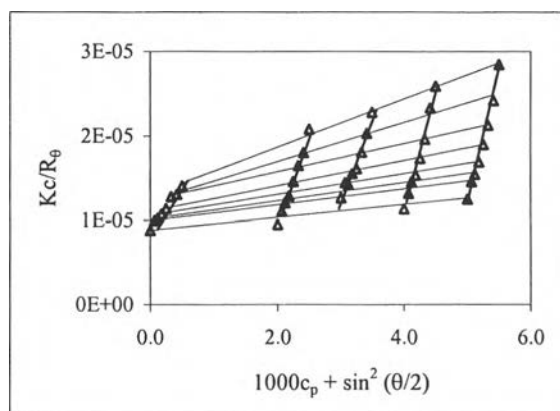
Figure 1.8 Zimm plot for PEO ($M_w = 1 \times 10^5$) solution in water at 30°C.

(ii) $M_w = 6 \times 10^5$ g/mol (Figure is shown in Section 4.1.1.2)

0.05 g/dL PEO in water

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	1.965
40	0.6981	0.1170	2.152
50	0.8727	0.1786	2.342
60	1.0472	0.2500	2.478
70	1.2217	0.3290	2.795
80	1.3963	0.4132	2.937
90	1.5708	0.5000	3.210
100	1.7453	0.5868	3.458
110	1.9199	0.6710	3.671
120	2.0944	0.7500	3.801

0.1 g/dL PEO in water

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.294
40	0.6981	0.1170	2.411
50	0.8727	0.1786	2.683
60	1.0472	0.2500	2.928
70	1.2217	0.3290	3.337
80	1.3963	0.4132	3.766
90	1.5708	0.5000	4.207
100	1.7453	0.5868	4.490
110	1.9199	0.6710	4.568
120	2.0944	0.7500	4.808

0.15 g/dL PEO in water

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.444
40	0.6981	0.1170	2.711
50	0.8727	0.1786	2.981
60	1.0472	0.2500	3.347
70	1.2217	0.3290	3.788
80	1.3963	0.4132	4.148
90	1.5708	0.5000	4.277
100	1.7453	0.5868	4.473
110	1.9199	0.6710	4.774
120	2.0944	0.7500	5.029

0.2 g/dL PEO in water

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.676
40	0.6981	0.1170	2.740
50	0.8727	0.1786	3.097
60	1.0472	0.2500	3.297
70	1.2217	0.3290	3.660
80	1.3963	0.4132	3.946
90	1.5708	0.5000	4.213
100	1.7453	0.5868	4.310
110	1.9199	0.6710	4.712
120	2.0944	0.7500	4.918

0.1 g/dL PEO in 0.1 M KNO_3

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.35
40	0.6981	0.1170	2.75
50	0.8727	0.1786	3.09
60	1.0472	0.2500	3.58
70	1.2217	0.3290	4.04
80	1.3963	0.4132	4.59
90	1.5708	0.5000	5.09
100	1.7453	0.5868	5.45
110	1.9199	0.6710	5.83
120	2.0944	0.7500	6.43

0.15 g/dL PEO in 0.1 M KNO_3

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	Kc/R_θ x 10^6
30	0.5236	0.0670	2.71
40	0.6981	0.1170	2.95
50	0.8727	0.1786	3.49
60	1.0472	0.2500	4.01
70	1.2217	0.3290	4.58
80	1.3963	0.4132	5.11
90	1.5708	0.5000	5.75
100	1.7453	0.5868	6.27
110	1.9199	0.6710	6.51
120	2.0944	0.7500	6.68

0.2 g/dL PEO in 0.1 M KNO_3

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	Kc/R_θ x 10^6
30	0.5236	0.0670	2.89
40	0.6981	0.1170	3.41
50	0.8727	0.1786	3.84
60	1.0472	0.2500	4.31
70	1.2217	0.3290	4.85
80	1.3963	0.4132	5.35
90	1.5708	0.5000	5.99
100	1.7453	0.5868	6.57
110	1.9199	0.6710	7.22
120	2.0944	0.7500	7.68

0.25 g/dL PEO in 0.1 M KNO_3

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	Kc/R_θ x 10^6
30	0.5236	0.0670	3.17
40	0.6981	0.1170	3.61
50	0.8727	0.1786	4.04
60	1.0472	0.2500	4.55
70	1.2217	0.3290	5.10
80	1.3963	0.4132	5.63
90	1.5708	0.5000	6.29
100	1.7453	0.5868	6.95
110	1.9199	0.6710	7.42
120	2.0944	0.7500	7.98
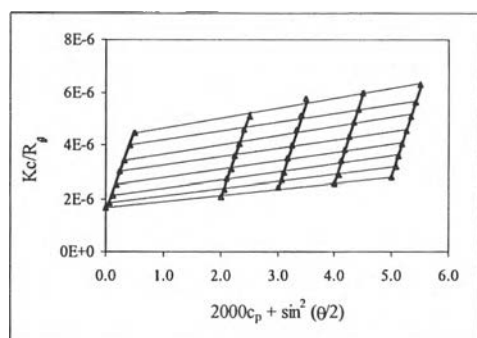
Figure 1.9 Zimm plot for PEO ($M_w = 6 \times 10^5$) solution in 0.1 M KNO$_3$ at 30°C.

(iii) $M_w = 9 \times 10^5$ g/mol

0.05 g/dL PEO in water

Angle (degree)	Angle (radian)	Sin^2(θ/2)	Kc/R$_\theta$ x 10^6
30	0.5236	0.0670	1.957
40	0.6981	0.1170	2.150
50	0.8727	0.1786	2.308
60	1.0472	0.2500	2.503
70	1.2217	0.3290	2.801
80	1.3963	0.4132	3.045
90	1.5708	0.5000	3.316
100	1.7453	0.5868	4.783
110	1.9199	0.6710	3.845
120	2.0944	0.7500	4.176

0.1g/dL PEO in water

Angle (degree)	Angle (radian)	Sin^2(θ/2)	Kc/R$_\theta$ x 10^6
30	0.5236	0.0670	2.379
40	0.6981	0.1170	2.650
50	0.8727	0.1786	2.902
60	1.0472	0.2500	3.173
70	1.2217	0.3290	3.379
80	1.3963	0.4132	3.606
90	1.5708	0.5000	3.861
100	1.7453	0.5868	3.870
110	1.9199	0.6710	4.303
120	2.0944	0.7500	5.138

0.15 g/dL PEO in water

Angle (degree)	Angle (radian)	$\text{Sin}^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.912
40	0.6981	0.1170	3.183
50	0.8727	0.1786	3.432
60	1.0472	0.2500	3.709
70	1.2217	0.3290	4.023
80	1.3963	0.4132	4.235
90	1.5708	0.5000	4.485
100	1.7453	0.5868	4.986
110	1.9199	0.6710	5.278
120	2.0944	0.7500	5.218

0.2 g/dL PEO in water

Angle (degree)	Angle (radian)	$\text{Sin}^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	3.518
40	0.6981	0.1170	3.715
50	0.8727	0.1786	3.985
60	1.0472	0.2500	4.234
70	1.2217	0.3290	4.571
80	1.3963	0.4132	4.847
90	1.5708	0.5000	5.131
100	1.7453	0.5868	5.197
110	1.9199	0.6710	5.732
120	2.0944	0.7500	6.055
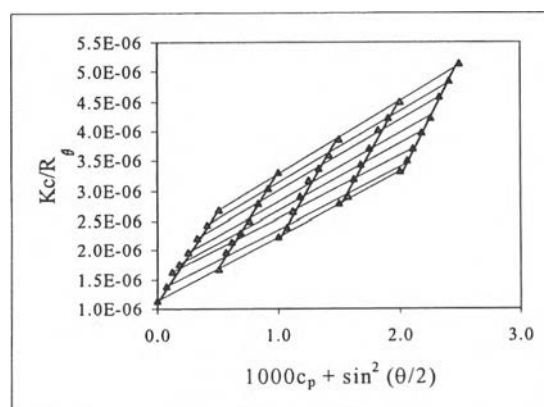
Figure 1.10 Zimm plot for PEO ($M_w = 9 \times 10^5$) solution in water at 30°C.

1.4 Data from refractive index increment measurement

(i) PEO in aqueous solution (Figure is shown in Section 4.1.3)

c_p (g/100 mL)	$\Delta n \times 10^6$	$\Delta n \times 10^6$	dn/dc (mL/g)
0.01	17.0	12.8	
0.02	31.0	24.2	
0.03	38.8	48.4	0.1360 ± 0.001
0.04	46.0	56.0	
0.05	64.4	72.8	

Appendix - 2

Binary System of HTAC-Water and HTAC- Salt Mixture

2.1 Data from surface tension measurement

c_s (mM)	γ (mN/m)	γ (mN/m)	Std. Deviation
0	61.5	61.5	± 0.00
0.0625	46.2	46.2	± 0.00
0.1250	43.1	43.1	± 0.00
0.2500	43.0	42.8	± 0.14
0.3125	40.5	38.2	± 1.63
0.6250	35.5	35.3	± 0.14
0.9375	34.4	34.4	± 0.00
1.0938	34.2	33.2	± 0.71
1.2500	32.6	32.6	± 0.00
1.8750	33.2	33.2	± 0.00
2.5000	33.5	33.5	± 0.00
3.1250	33.4	33.4	± 0.00
6.2500	34.4	33.4	± 0.71
9.3750	33.8	34.0	± 0.14
12.5000	33.5	33.5	± 0.00
15.6250	33.3	33.3	± 0.00

2.2 Data from conductivity measurement

(i) HTAC in water

c_s (mM)	Conductance (μS/cm)					
	25°C	30°C	35°C	40°C	45°C	50°C
0	4	5	5	5	5	5
0.3125	34	35	35	35	36	36
0.6250	60	62	62	62	63	63
0.9375	86	88	89	90	92	93
1	93	94	94	95	96	97
1.0625	97	97	98	98	98	100
1.1250	102	102	102	104	104	106
1.1875	107	109	110	111	113	115
1.2500	113	114	115	116	117	119
1.3125	117	118	119	120	121	123
1.3750	120	121	122	124	126	129
1.4375	125	126	127	127	129	131
1.5625	129	130	131	133	137	140
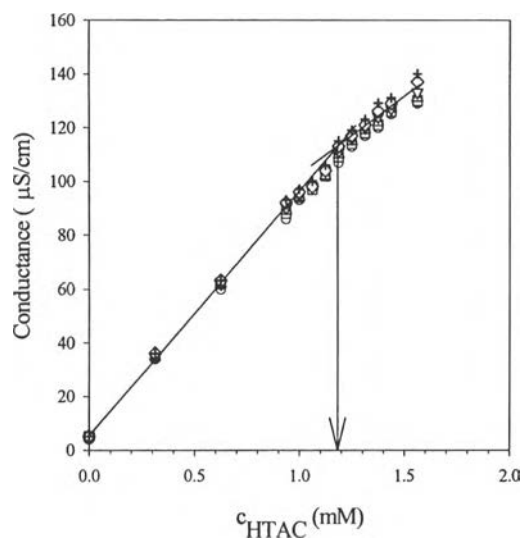
Figures 2.1 The variation of conductivity vs. HTAC concentration at 25°C to 50°C: (O) 25°C; (□) 30°C; (Δ) 35°C; (∇) 40°C; (◊) 45°C; and (+) 50°C.

(ii) HTAC in 0.1 M KNO_3 solution at 30°C

c_s (mM)	Conductance (μS/cm)	Conductance (μS/cm)	Std. deviation
0	12850	12860	± 7.1
0.1	12900	12880	± 14.1
0.1953	12930	12910	± 14.1
0.3906	12970	12920	± 35.4
0.4688	12950	12930	± 14.1
0.7813	12950	12970	± 14.1
0.9375	12980	13000	± 14.1
1.5625	13010	13020	± 7.1
3.125	13020	13020	± 0.0
6.25	13040	13030	± 7.1
9.375	13050	13050	± 0.0
12.5	13070	13070	± 0.0

2.3 Viscosity measurement

(i) HTAC in water at 30°C

c_s (mM)	η_{sp}	η_{sp}	Average η_{sp}	Std. deviation
3.125	0.0012	0.0004	0.0080	± 0.0005
6.250	0.0280	0.0239	0.0260	± 0.0029
9.375	0.0458	0.0377	0.0418	± 0.0057
12.50	0.0680	0.0607	0.0644	± 0.0052
15.63	0.0913	0.0804	0.0859	± 0.0077
18.75	0.0788	0.0927	0.0858	± 0.0098
21.88	0.1001	0.1072	0.1037	± 0.0050
25.00	0.1162	0.1211	0.1187	± 0.0035
31.25	0.1390	0.1419	0.1405	± 0.0021
62.50	0.2720	0.2720	0.2720	± 0.0000
93.75	0.4159	0.4086	0.5483	± 0.0052
125.00	0.5627	0.5627	0.5627	± 0.0000
156.25	0.7273	0.7020	0.7147	± 0.0179

Appendix - 3

Ternary System of PEO/HTAC/Water

3.1 Effect of surfactant concentration

3.1.1 Data from conductivity measurement

(i) PEO ($M_w = 6 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 30°C

c_s (mM)	Conductance (μS/cm)	Conductance (μS/cm)	Std. deviation
0	19	19	± 0.00
0.0780	26	26	± 0.00
0.1563	35	31	± 2.83
0.2344	45	45	± 0.00
0.3125	50	46	± 2.83
0.3906	57	57	± 0.00
0.4688	65	59	± 4.24
0.5000	66	66	± 0.00
0.5625	68	68	± 0.00
0.6250	72	69	± 2.12
0.6875	78	78	± 0.00
0.7813	79	80	± 0.71
0.9375	93	93	± 0.00
1.2500	110	110	± 0.00
1.5625	135	135	± 0.00

Figure is shown in Section 4.3.1.1.

3.1.2 Data from viscosity measurement

(i) PEO ($M_w = 6 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 30°C

c_s (mM)	η_{sp}	η_{sp}	Std. deviation
0	0.4736	0.4686	± 0.004
0.0313	0.4766	0.4766	± 0.000
0.0625	0.4725	0.4725	± 0.000
0.0938	0.4699	0.4699	± 0.000
0.1250	0.4626	0.4626	± 0.000
0.1563	0.4641	0.4600	± 0.003
0.3125	0.4595	0.4595	± 0.000

c_s (mM)	η_{sp}	η_{sp}	Std. deviation
0.6250	0.4588	0.4588	± 0.000
0.9375	0.4411	0.4700	± 0.020
1.2500	0.4622	0.4800	± 0.013
1.5625	0.5261	0.5000	± 0.019
3.125	0.5714	0.5714	± 0.000
4.6875	0.6294	0.6478	± 0.013
6.2500	0.6190	0.6384	± 0.014
7.8125	0.5929	0.6301	± 0.026
9.3750	0.5911	0.6001	± 0.006
12.500	0.6049	0.5850	± 0.014
15.625	0.6081	0.5869	± 0.015

Figure is shown in Section 4.3.1.2.

3.1.3 Data from dynamic light scattering measurement

(i) PEO ($M_w = 6 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 30°C

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	8.8	9.3
0.0313	90	22.98	528.08	9.5	9.7
	110	26.61	708.09	10.1	10.4
	130	29.44	866.71	10.5	10.8
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	8.6	9.2
0.0625	90	22.98	528.08	9.3	9.7
	110	26.61	708.09	9.9	9.6
	130	29.44	866.71	10.0	10.2
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	9.1	9.4
0.0938	90	22.98	528.08	9.4	9.8
	110	26.61	708.09	9.9	10.1
	130	29.44	866.71	10.2	10.5

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	9.1	9.6
0.1250	90	22.98	528.08	9.5	9.9
	110	26.61	708.09	9.7	10.0
	130	29.44	866.71	10.2	10.9
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	8.2	8.9
0.1563	90	22.98	528.08	8.7	9.0
	110	26.61	708.09	9.2	9.9
	130	29.44	866.71	9.5	10.1
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	5.2	6.5
0.3125	90	22.98	528.08	6.4	7.1
	110	26.61	708.09	7.0	7.4
	130	29.44	866.71	7.7	8.0
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	5.6	6.1
0.625	90	22.98	528.08	7.0	7.3
	110	26.61	708.09	7.6	7.7
	130	29.44	866.71	8.0	8.5
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	5.9	6.4
1.25	90	22.98	528.08	6.6	7.1
	110	26.61	708.09	7.3	7.7
	130	29.44	866.71	7.9	8.8
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	5.3	6.0
1.5625	90	22.98	528.08	6.0	6.6
	110	26.61	708.09	6.9	7.1
	130	29.44	866.71	7.1	7.5

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
2.3438	70	18.64	347.45	6.0	6.0
	90	22.98	528.08	6.0	6.5
	110	26.61	708.09	7.0	7.8
	130	29.44	866.71	7.5	8.8
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
3.1250	70	18.64	347.45	5.5	4.6
	90	22.98	528.08	6.3	7.0
	110	26.61	708.09	7.1	8.2
	130	29.44	866.71	7.3	7.6
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
3.9063	70	18.64	347.45	5.6	6.2
	90	22.98	528.08	6.8	7.2
	110	26.61	708.09	7.8	8.4
	130	29.44	866.71	8.8	9.6
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
4.6875	70	18.64	347.45	4.6	4.8
	90	22.98	528.08	5.6	6.0
	110	26.61	708.09	6.3	7.0
	130	29.44	866.71	7.2	7.8
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
5.4688	70	18.64	347.45	5.6	6.2
	90	22.98	528.08	6.8	7.2
	110	26.61	708.09	7.8	8.4
	130	29.44	866.71	8.8	9.6
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
6.25	70	18.64	347.45	6.0	6.5
	90	22.98	528.08	7.2	7.6
	110	26.61	708.09	7.8	8.5
	130	29.44	866.71	8.8	9.2

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
7.0313	70	18.64	347.45	6.0	6.5
	90	22.98	528.08	7.2	7.6
	110	26.61	708.09	7.8	8.5
	130	29.44	866.71	8.8	9.2
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
7.8125	70	18.64	347.45	7.0	6.3
	90	22.98	528.08	7.6	7.8
	110	26.61	708.09	8.3	9.1
	130	29.44	866.71	9.2	9.8
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
9.3750	70	18.64	347.45	6.3	6.6
	90	22.98	528.08	7.4	7.6
	110	26.61	708.09	7.9	8.6
	130	29.44	866.71	8.5	9.5
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
10.9375	70	18.64	347.45	6.9	6.6
	90	22.98	528.08	7.1	7.6
	110	26.61	708.09	7.6	8.2
	130	29.44	866.71	8.8	9.8
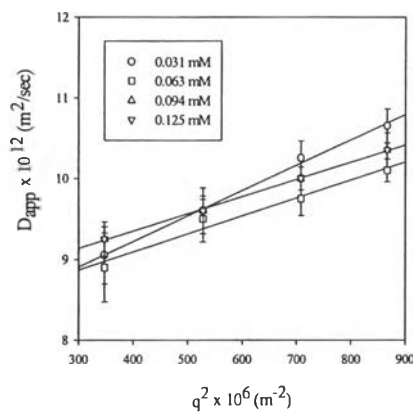
Figure 3.1 (A) D_{app} as a function of q^2 at different HTAC concentrations. PEO $M_w = 6 \times 10^5$ g/mol, PEO concentration = 0.1 g/dL; HTAC concentrations: (O) 0.031 mM; (□) 0.063 mM; (Δ) 0.094 mM; and (∇) 0.125 mM.
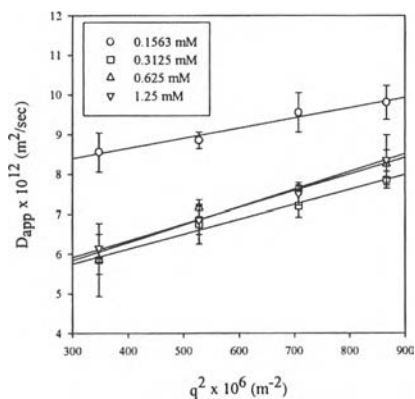
Figure 3.1 (B) D_{app} as a function of q^2 at different HTAC concentrations. (O) 0.1563 mM; (□) 0.3125 mM; (Δ) 0.625 mM; and (∇) 1.25 mM.
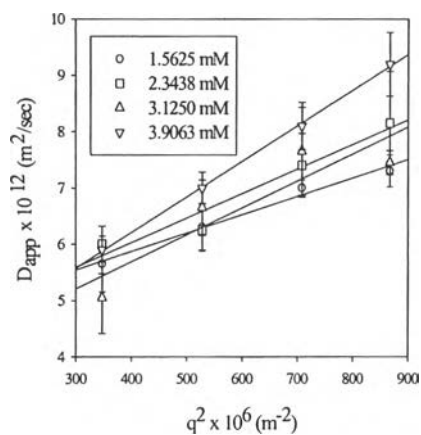
Figure 3.1 (C) D_{app} as a function of q^2 at different HTAC concentrations. (O) 1.5625 mM; (□) 2.3438 mM; (Δ) 3.125 mM; and (∇) 3.9063 mM.
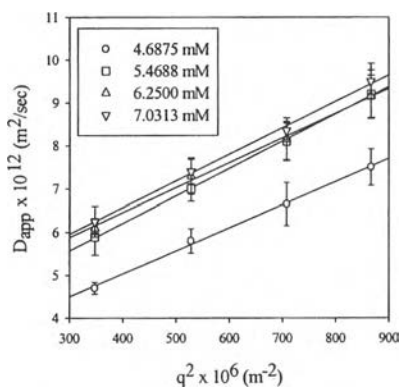
Figure 3.1 (D) D_{app} as a function of q^2 at different HTAC concentrations. (O) 4.6875 mM; (□) 5.4688 mM; (Δ) 6.25 mM; and (∇) 7.0313 mM.
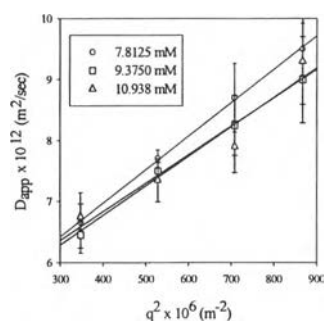
Figure 3.1 (E) D_{app} as a function of q^2 at different HTAC concentrations. (O) 7.8125 mM; (□) 9.375 mM; (Δ) and 10.9375 mM.

(ii) PEO ($M_w = 6 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 30°C

c_s (mM)	$D_{cm} \times 10^{12}$ (m^2/sec)	$D_{cm} \times 10^{12}$ (m^2/sec)	Std. deviation	R_h (nm)	R_h (nm)	Std. deviation
0	6.8414	5.8420	± 0.71	40.53	47.46	± 4.9
0.0313	7.9133	8.0133	± 0.07	35.04	34.60	± 0.3
0.0625	8.0229	8.3829	± 0.25	34.56	33.08	± 1.1
0.0938	8.4665	8.5265	± 0.04	32.75	32.52	± 0.2
0.1250	8.2428	8.8628	± 0.44	33.62	31.29	± 1.6
0.1563	7.4056	7.8256	± 0.30	37.44	35.43	± 1.4
0.3125	4.4281	4.8481	± 0.30	57.08	62.48	± 3.8
0.6250	4.0614	4.9414	± 0.62	55.59	67.65	± 8.5
1.2500	4.6636	4.6636	± 0.00	59.46	59.46	± 0.0
1.5625	4.3730	4.7530	± 0.27	58.24	63.30	± 3.6
2.3438	4.2792	4.2792	± 0.00	64.80	64.80	± 0.0
3.1250	3.7695	3.7695	± 0.00	73.56	73.56	± 0.0
3.9063	3.6385	3.6760	± 0.03	76.21	75.43	± 0.6
4.6875	2.9274	3.8874	± 0.68	81.38	81.38	± 0.0
5.4688	3.8493	3.4093	± 0.31	71.77	81.03	± 6.5
6.2500	4.3500	4.5258	± 0.13	63.74	61.27	± 1.7
7.0313	4.3369	4.7169	± 0.27	58.68	63.82	± 3.6
7.8125	4.4053	4.8253	± 0.30	57.10	62.80	± 4.0
9.3750	4.8569	4.8363	± 0.01	57.09	57.09	± 0.0
10.9375	4.7816	5.2216	± 0.31	53.00	57.88	± 3.5

Figure is shown in Section 4.3.1.2.

3.1.4 Data from static light scattering measurement

(i) PEO ($M_w = 6 \times 10^5$ g/mol) + HTAC at different c_s/c_p ratios

$c_s/c_p = 0.1$ in water

(0.05 g/dL PEO + 0.005 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	1.777
40	0.6981	0.1170	2.039
50	0.8727	0.1786	2.336
60	1.0472	0.2500	2.532
70	1.2217	0.3290	2.692
80	1.3963	0.4132	2.968
90	1.5708	0.5000	3.325
100	1.7453	0.5868	3.353
110	1.9199	0.6710	3.443
120	2.0944	0.7500	3.511

(0.1 g/dL PEO + 0.01 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.181
40	0.6981	0.1170	2.393
50	0.8727	0.1786	2.651
60	1.0472	0.2500	2.915
70	1.2217	0.3290	3.294
80	1.3963	0.4132	3.590
90	1.5708	0.5000	3.716
100	1.7453	0.5868	3.770
110	1.9199	0.6710	3.904
120	2.0944	0.7500	4.096

(0.2 g/dL PEO + 0.02 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.645
40	0.6981	0.1170	2.949
50	0.8727	0.1786	3.140
60	1.0472	0.2500	3.530
70	1.2217	0.3290	3.947
80	1.3963	0.4132	4.261
90	1.5708	0.5000	4.493
100	1.7453	0.5868	4.806
110	1.9199	0.6710	4.992
120	2.0944	0.7500	5.061
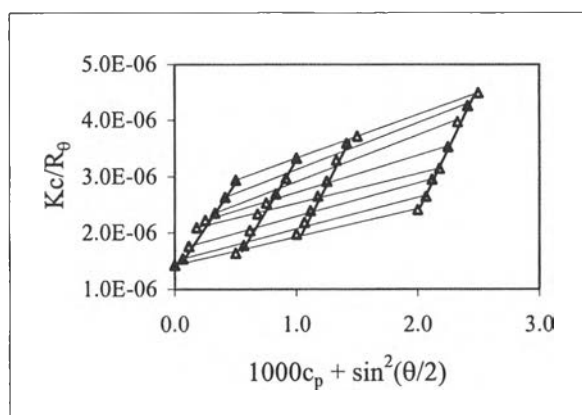
Figure 3.2 Zimm plot for PEO(2)-HTAC solution at c_s/c_p = 0.1 in water at 30°C. The lines drawn represent least-squares fit to the data.

c_s/c_p = 0.5 in water

(0.025 g/dL PEO + 0.0125 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	1.725
40	0.6981	0.1170	1.984
50	0.8727	0.1786	2.248
60	1.0472	0.2500	2.494
70	1.2217	0.3290	2.633
80	1.3963	0.4132	2.876
90	1.5708	0.5000	3.037

(0.05 g/dL PEO + 0.025 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	1.911
40	0.6981	0.1170	2.049
50	0.8727	0.1786	2.226
60	1.0472	0.2500	2.450
70	1.2217	0.3290	2.612
80	1.3963	0.4132	2.856
90	1.5708	0.5000	3.057

(0.1 g/dL PEO + 0.05 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.049
40	0.6981	0.1170	2.196
50	0.8727	0.1786	2.430
60	1.0472	0.2500	2.608
70	1.2217	0.3290	2.803
80	1.3963	0.4132	3.175
90	1.5708	0.5000	3.201

(0.2 g/dL PEO + 0.1 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.426
40	0.6981	0.1170	2.612
50	0.8727	0.1786	2.816
60	1.0472	0.2500	3.009
70	1.2217	0.3290	3.146
80	1.3963	0.4132	3.345
90	1.5708	0.5000	3.562

Figure 3.3 Zimm plot for PEO(2)-HTAC solution at $c_s/c_p = 0.5$ in water at 30°C. The lines drawn represent least-squares fit to the data.

$c_s/c_p = 1.0$ in water

(0.025 g/dL PEO + 0.025 g/dL HTAC)

Angle (degree)	Angle (radian)	$\text{Sin}^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	1.733
40	0.6981	0.1170	1.979
50	0.8727	0.1786	2.273
60	1.0472	0.2500	2.568
70	1.2217	0.3290	2.857
80	1.3963	0.4132	3.057
90	1.5708	0.5000	3.200

(0.05 g/dL PEO + 0.05 g/dL HTAC)

Angle (degree)	Angle (radian)	$\text{Sin}^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	1.793
40	0.6981	0.1170	2.014
50	0.8727	0.1786	2.239
60	1.0472	0.2500	2.451
70	1.2217	0.3290	2.732
80	1.3963	0.4132	2.925
90	1.5708	0.5000	3.257

(0.1 g/dL PEO + 0.1 g/dL HTAC)

Angle (degree)	Angle (radian)	$\text{Sin}^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.035
40	0.6981	0.1170	2.317
50	0.8727	0.1786	2.586
60	1.0472	0.2500	2.876
70	1.2217	0.3290	3.146
80	1.3963	0.4132	3.309
90	1.5708	0.5000	3.398

(0.2 g/dL PEO + 0.2 g/dL HTAC)

Angle (degree)	Angle (radian)	$\text{Sin}^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.501
40	0.6981	0.1170	2.668
50	0.8727	0.1786	2.897
60	1.0472	0.2500	3.241
70	1.2217	0.3290	3.475
80	1.3963	0.4132	3.639
90	1.5708	0.5000	3.839
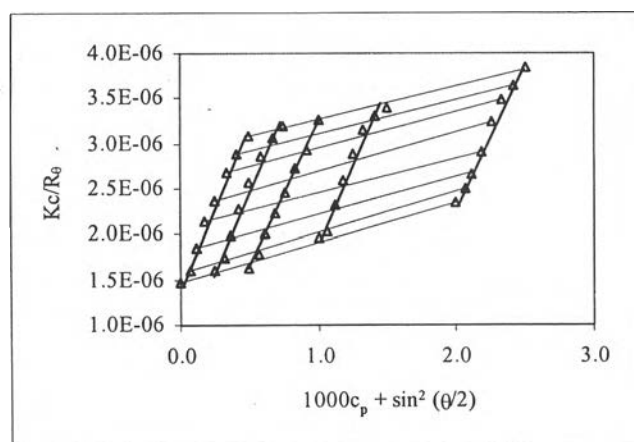
Figure 3.4 Zimm plot for PEO(2)-HTAC solution at $c_s/c_p = 1.0$ in water at 30°C. The lines drawn represent least-squares fit to the data.

$c_s/c_p = 1.75$ in water

(0.025 g/dL PEO + 0.04375 g/dL HTAC)

Angle (degree)	Angle (radian)	$\sin^2(\theta/2)$	Kc/R_θ x 10^6
30	0.5236	0.0670	1.673
40	0.6981	0.1170	1.906
50	0.8727	0.1786	2.314
60	1.0472	0.2500	2.746
70	1.2217	0.3290	3.127
80	1.3963	0.4132	3.533
90	1.5708	0.5000	4.171
100	1.7453	0.5868	4.537

(0.05 g/dL PEO + 0.0875 g/dL HTAC)

Angle (degree)	Angle (radian)	$\sin^2(\theta/2)$	Kc/R_θ x 10^6
30	0.5236	0.0670	2.026
40	0.6981	0.1170	2.282
50	0.8727	0.1786	2.695
60	1.0472	0.2500	3.092
70	1.2217	0.3290	3.482
80	1.3963	0.4132	3.942
90	1.5708	0.5000	4.457
100	1.7453	0.5868	4.841

(0.1 g/dL PEO + 0.175 g/dL HTAC)

Angle (degree)	Angle (radian)	$\sin^2(\theta/2)$	Kc/R_θ x 10^6
30	0.5236	0.0670	3.054
40	0.6981	0.1170	3.359
50	0.8727	0.1786	3.677
60	1.0472	0.2500	4.061
70	1.2217	0.3290	4.445
80	1.3963	0.4132	4.821
90	1.5708	0.5000	5.277
100	1.7453	0.5868	5.680

(0.1 g/dL PEO + 0.175 g/dL HTAC)

Angle (degree)	Angle (radian)	$\sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	4.342
40	0.6981	0.1170	4.746
50	0.8727	0.1786	5.184
60	1.0472	0.2500	5.533
70	1.2217	0.3290	5.962
80	1.3963	0.4132	6.227
90	1.5708	0.5000	6.550
100	1.7453	0.5868	6.920

Figure is shown in Section 4.3.6.1.

$c_s/c_p = 2.5$ in water

(0.025 g/dL PEO + 0.0625 g/dL HTAC)

Angle (degree)	Angle (radian)	$\sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	1.883
40	0.6981	0.1170	2.077
50	0.8727	0.1786	2.682
60	1.0472	0.2500	3.292
70	1.2217	0.3290	3.590
80	1.3963	0.4132	3.983
90	1.5708	0.5000	4.673

(0.05 g/dL PEO + 0.0825 g/dL HTAC)

Angle (degree)	Angle (radian)	$\sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.189
40	0.6981	0.1170	2.899
50	0.8727	0.1786	3.503
60	1.0472	0.2500	3.787
70	1.2217	0.3290	4.106
80	1.3963	0.4132	4.617
90	1.5708	0.5000	5.244

(0.1 g/dL PEO + 0.175 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	3.175
40	0.6981	0.1170	3.712
50	0.8727	0.1786	4.102
60	1.0472	0.2500	4.696
70	1.2217	0.3290	5.145
80	1.3963	0.4132	5.637
90	1.5708	0.5000	6.586

(0.2 g/dL PEO + 0.35 g/dL HTAC)

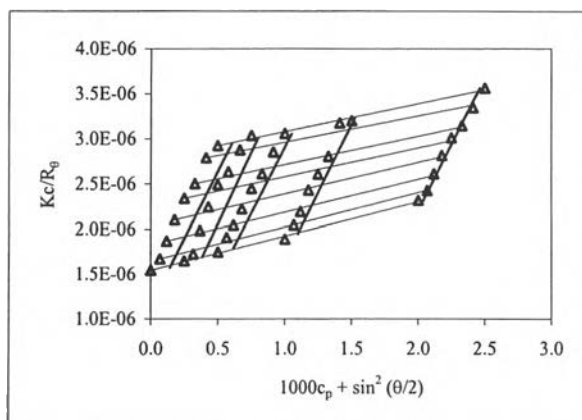| Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	5.473
40	0.6981	0.1170	5.900
50	0.8727	0.1786	6.515
60	1.0472	0.2500	7.045
70	1.2217	0.3290	7.545
80	1.3963	0.4132	8.088
90	1.5708	0.5000	8.821
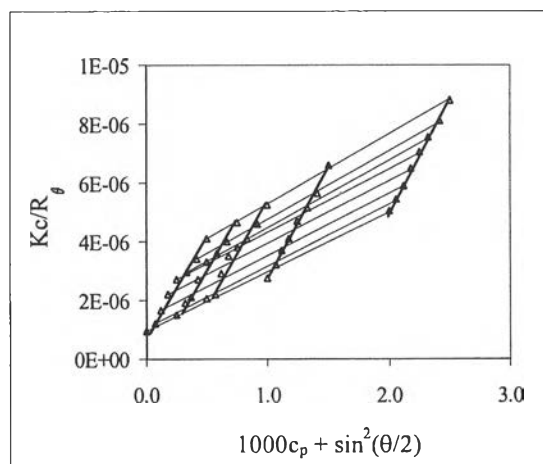
Figure 3.5 Zimm plot for PEO(2)-HTAC solution at $c_s/c_p = 2.5$ in water at $30°C$. The lines drawn represent least-squares fit to the data.

$c_s/c_p = 3.0$ in water

(0.025 g/dL PEO + 0.075 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	1.581
40	0.6981	0.1170	1.984
50	0.8727	0.1786	2.434
60	1.0472	0.2500	2.903
70	1.2217	0.3290	3.403
80	1.3963	0.4132	3.957
90	1.5708	0.5000	4.480

(0.05 g/dL PEO + 0.15 HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.317
40	0.6981	0.1170	2.819
50	0.8727	0.1786	3.118
60	1.0472	0.2500	3.547
70	1.2217	0.3290	4.061
80	1.3963	0.4132	4.478
90	1.5708	0.5000	4.965

(0.1 g/dL PEO + 0.3 HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.879
40	0.6981	0.1170	3.390
50	0.8727	0.1786	3.730
60	1.0472	0.2500	4.208
70	1.2217	0.3290	4.737
80	1.3963	0.4132	5.147
90	1.5708	0.5000	5.580

(0.2 g/dL PEO + 0.6 HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	4.604
40	0.6981	0.1170	5.031
50	0.8727	0.1786	5.645
60	1.0472	0.2500	6.320
70	1.2217	0.3290	7.043
80	1.3963	0.4132	7.461
90	1.5708	0.5000	7.727
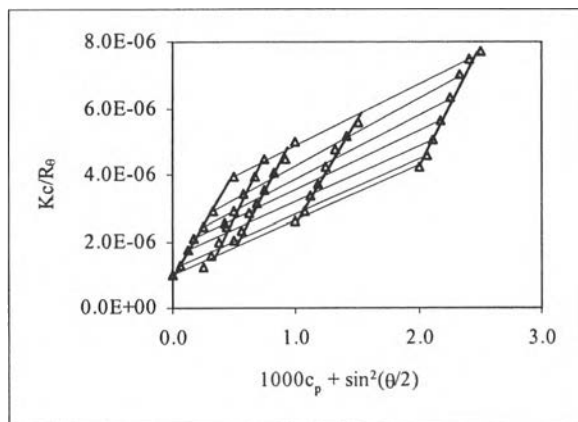
Figure 3.6 Zimm plot for PEO(2)-HTAC solution at c_s/c_p = 3.0 in water at 30°C. The lines drawn represent least-squares fit to the data.

(ii) PEO (M_w = 6x10^5 g/mol) + HTAC at different c_s/c_p ratios

c_s/c_p	D' (g of HTAC/g of EO)	$M_w \times 10^{-5}$ (g/mol)	$M_{w,com} \times 10^{-5}$ (g/mol)	R_g (nm)
0	0	6.08 ± 0.13	6.08 ± 0.13	86.8 ± 3.2
0.1	0.069	6.25 ± 0.13	6.54 ± 0.20	86.9 ± 5.3
0.5	0.214	6.64 ± 0.18	8.06 ± 0.31	60.8 ± 3.6
1.0	0.358	6.80 ± 0.26	9.24 ± 0.50	73.6 ± 1.7
1.75	0.874	12.07 ± 1.39	22.62 ± 1.68	81.4 ± 0.4
2.5	0.731	11.07 ± 1.30	17.93 ± 1.44	60.0 ± 4.0
3.0	0.680	9.47 ± 0.47	15.91 ± 1.12	58.0 ± 1.3

3.1.5 Data from refractive index increment measurement

(i) PEO ($M_w = 6 \times 10^5$ g/mol) + HTAC at $c_s/c_p = 0.1$ in water

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{\mu s}$ (mL/g)
	0.06	80.9	84.8	
	0.07	100.2	102.2	
0.1	0.08	114.2	116.2	0.1440 ± 0.001
	0.09	125.2	128.2	
	0.1	130.2	144.2	

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{cs}$ (mL/g)
	0.06	74.9	80.9	
	0.07	91.5	96.5	
0.1	0.08	104.4	109.4	0.1346 ± 0.003
	0.09	128.8	114.8	
	0.10	142.6	130.6	

c_s/c_p	c_s (g/100 mL)	Δn	Δn	$(dn/dc_s)_{cp}$ (mL/g)
	0.003	4.2	4.0	
	0.004	5.2	5.0	
0.1	0.005	7.4	7.8	0.1362 ± 0.003
	0.006	8.5	8.8	
	0.007	9.4	9.8	

Figure 3.7 (A) dn/dc value for PEO + HTAC at c_s/c_p = 0.1 (fixed HTAC concentration and varied PEO concentration after dialysis).

Figure 3.7 (B) dn/dc value for PEO + HTAC at c_s/c_p = 0.1 (fixed HTAC concentration and varied PEO concentration without dialysis).

Figure 3.7 (C) dn/dc value for PEO + HTAC at $c_s/c_p = 0.1$ (fixed PEO concentration and varied HTAC concentration without dialysis).

(ii) PEO ($M_w = 6 \times 10^5$ g/mol) + HTAC at $c_s/c_p = 0.5$ in water

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{\mu s}$ (mL/g)
0.5	0.03	33.3	35.4	0.1480 ± 0.003
	0.04	50.2	57.4	
	0.05	70.2	75.2	
	0.06	86.0	91.0	
	0.07	98.6	102.6	

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{cs}$ (mL/g)
0.5	0.036	40.0	44.0	0.1202 ± 0.006
	0.038	44.2	48.2	
	0.040	46.6	49.6	
	0.042	50.2	51.2	
	0.044	50.8	55.8	

c_s/c_p	c_s (g/100 mL)	Δn	Δn	$(dn/dc_s)_{cp}$ (mL/g)
0.5	0.02	25.4	31.4	0.1302 ± 0.005
	0.022	28.6	33.6	
	0.025	33.4	38.4	
	0.028	35.2	44.2	
	0.03	40.0	45.0	
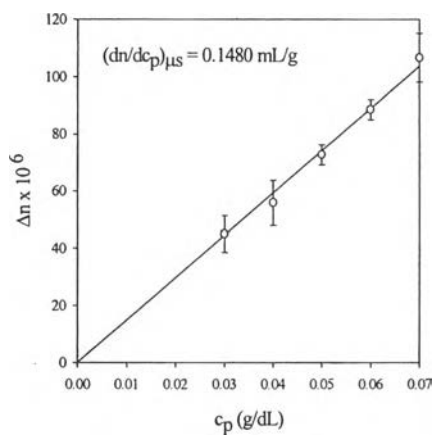
Figure 3.8 (A) dn/dc value for PEO + HTAC at c_s/c_p = 0.5 (fixed HTAC concentration and varied PEO concentration after dialysis).
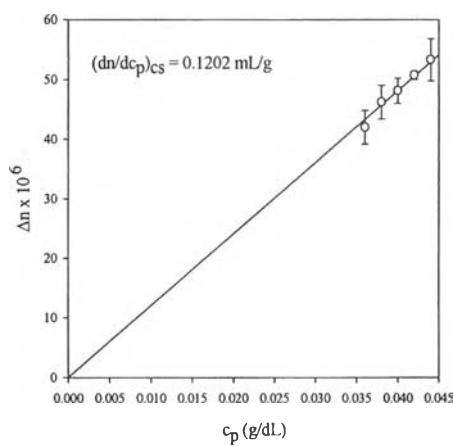
Figure 3.8 (B) dn/dc value for PEO + HTAC at c_s/c_p = 0.5 (fixed HTAC concentration and varied PEO concentration without dialysis).
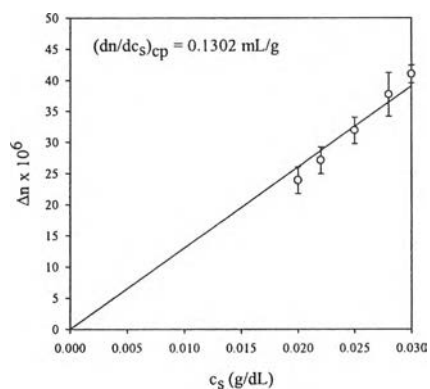
Figure 3.8 (C) dn/dc value for PEO + HTAC at $c_s/c_p = 0.5$ (fixed PEO concentration and varied HTAC concentration without dialysis).

(iii) PEO ($M_w = 6 \times 10^5$ g/mol) + HTAC at $c_s/c_p = 1.0$ in water

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{\mu s}$ (mL/g)
1.0	0.005	9.18	11.28	0.1540 ± 0.003
	0.01	19.58	22.48	
	0.02	36.48	37.68	
	0.04	49.98	53.58	
	0.06	92.68	98.68	

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{cs}$ (mL/g)
1.0	0.046	50.0	52.0	0.1120 ± 0.001
	0.048	55.4	49.4	
	0.05	55.2	55.2	
	0.052	57.4	57.4	
	0.054	61.6	65.6	

c_s/c_p	c_s (g/100 mL)	Δn	Δn	$(dn/dc_s)_{cp}$ (mL/g)
1.0	0.08	98	95	0.1173 ± 0.001
	0.09	110	105	
	0.10	117	118	
	0.11	128	129	
	0.12	136	140	
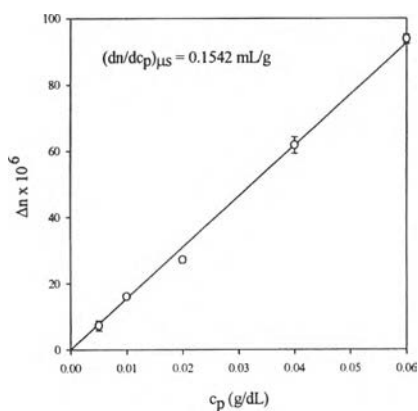
Figure 3.9 (A) dn/dc value for PEO + HTAC at c_s/c_p = 1.0 (fixed HTAC concentration and varied PEO concentration after dialysis).
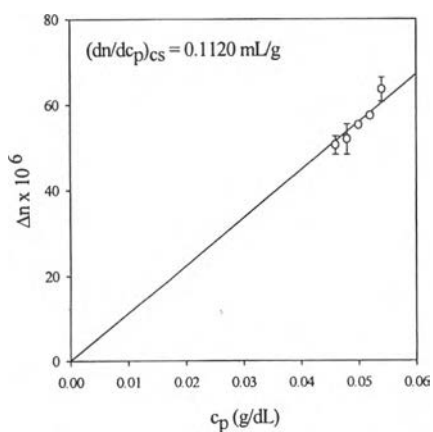
Figure 3.9 (B) dn/dc value for PEO+HTAC at c_s/c_p = 1.0 (fixed HTAC concentration and varied PEO concentration without dialysis).
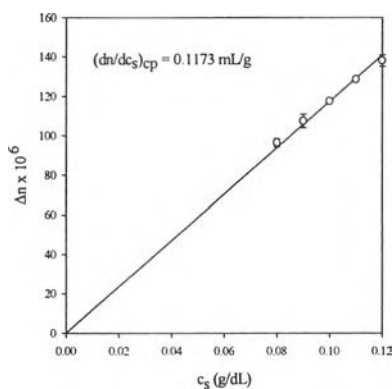
Figure 3.9 (C) dn/dc value for PEO + HTAC at $c_s/c_p = 1.0$ (fixed PEO concentration and varied HTAC concentration without dialysis).

(iv) PEO ($M_w = 6 \times 10^5$ g/mol) + HTAC at $c_s/c_p = 1.75$ in water

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{\mu s}$ (mL/g)
1.75	0.02	37.38	55.38	0.1880 ± 0.004
	0.04	64.68	83.68	
	0.05	92.68	100.68	
	0.06	102.68	114.68	

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{cs}$ (mL/g)
1.75	0.05	50.0	49.0	0.1002 ± 0.003
	0.055	58.0	54.0	
	0.06	60.0	61.0	
	0.065	64.0	65.2	
	0.07	69.6	70.6	

c_s/c_p	c_s (g/100 mL)	Δn	Δn	$(dn/dc_s)_{cp}$ (mL/g)
1.75	0.05	50.0	51.0	0.1005 ± 0.001
	0.055	58.0	54.0	
	0.06	60.0	61.0	
	0.065	64.2	65.2	
	0.07	69.6	70.6	
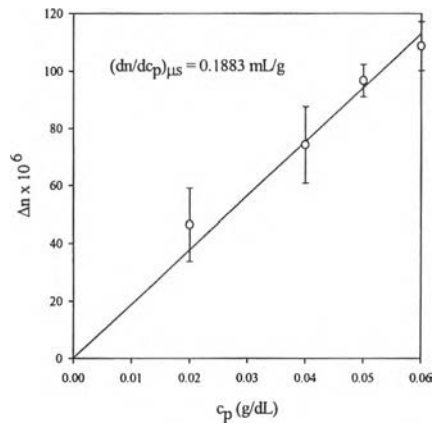
Figure 3.10 (A) dn/dc value for PEO + HTAC at c_s/c_p = 1.75 (fixed HTAC concentration and varied PEO concentration after dialysis).
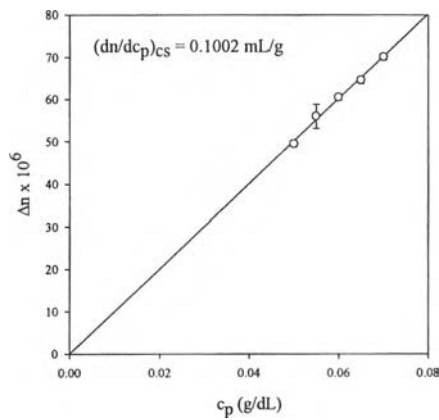
Figure 3.10 (B) dn/dc value for PEO + HTAC at c_s/c_p = 1.75 (fixed HTAC concentration and varied PEO concentration without dialysis).
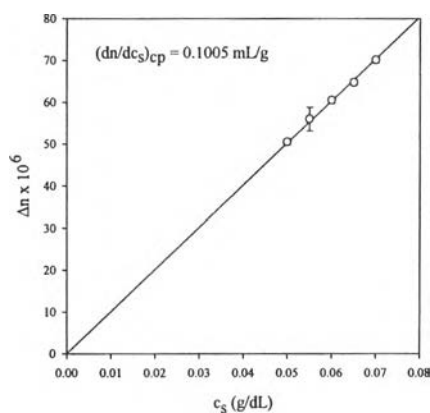
Figure 3.10 (C) dn/dc value for PEO + HTAC at c_s/c_p = 1.75 (fixed PEO concentration and varied HTAC concentration without dialysis).

(v) PEO (M_w = 6x10^5 g/mol) + HTAC at c_s/c_p = 2.5 in water

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{\mu s}$ (mL/g)
	0.01	12.4	39.8	
	0.03	52.2	68.2	
2.5	0.05	71.2	108.4	0.1860 ± 0.003
	0.06	109.6	112.8	
	0.08	143.6	153.2	

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{cs}$ (mL/g)
	0.056	53.8	58.8	
	0.058	57.6	57.6	
2.5	0.060	60.4	60.4	0.1012 ± 0.001
	0.062	64.2	62.2	
	0.064	66.4	64.4	

c_s/c_p	c_s (g/100 mL)	Δn	Δn	$(dn/dc_s)_{cp}$ (mL/g)
2.5	0.240	275	270	0.1160 ± 0.003
	0.245	282	273	
	0.250	299	288	
	0.255	300	293	
	0.260	319	299	
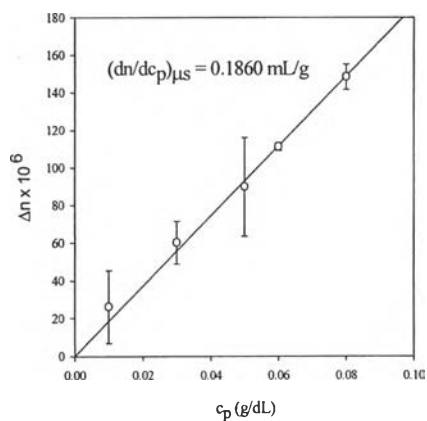
Figure 3.11 (A) dn/dc value for PEO + HTAC at c_s/c_p = 2.5 (fixed HTAC concentration and varied PEO concentration after dialysis).
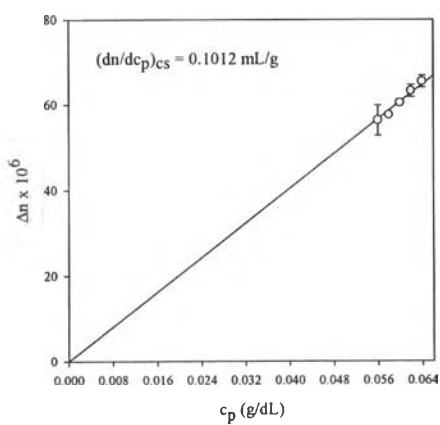
Figure 3.11 (B) dn/dc value for PEO + HTAC at c_s/c_p = 2.5 (fixed HTAC concentration and varied PEO concentration without dialysis).
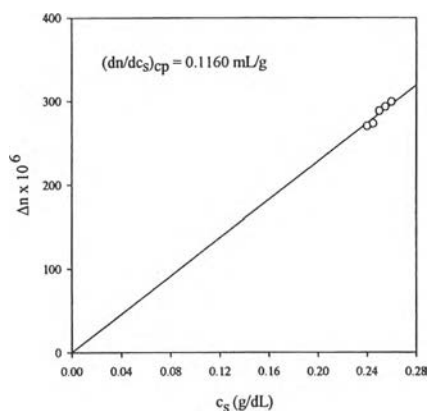
Figure 3.11 (C) dn/dc value for PEO + HTAC at $c_s/c_p = 2.5$ (fixed PEO concentration and varied HTAC concentration without dialysis).

(vi) PEO ($M_w = 6 \times 10^5$ g/mol) + HTAC at $c_s/c_p = 3.0$ in water

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{\mu s}$ (mL/g)
3.0	0.01	15.0	32.0	0.1930 ± 0.005
	0.02	33.0	41.2	
	0.03	50.6	68.8	
	0.04	70.6	80.8	
	0.06	90.6	102.6	

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{cs}$ (mL/g)
3.0	0.044	45.8	50.8	0.1105 ± 0.006
	0.048	49.8	53.6	
	0.050	52.2	56.2	
	0.052	55.6	58.6	
	0.054	60.0	65.0	

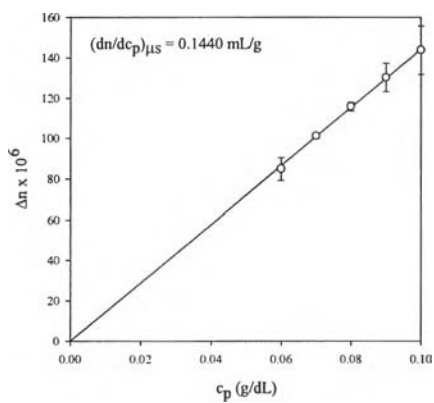| c_s/c_p	c_s (g/100 mL)	Δn	Δn	$(dn/dc_s)_{cp}$ (mL/g)
3.0	0.290	330	355	0.1214 ± 0.001
	0.295	354	366	
	0.300	362	365	
	0.305	376	369	
	0.310	385	378	
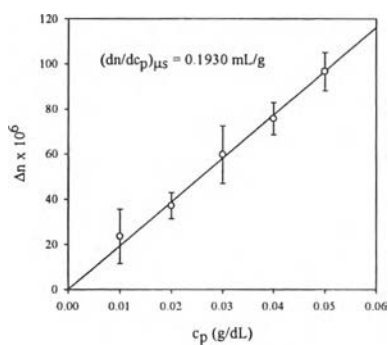
Figure 3.12 (A) dn/dc value for PEO + HTAC at c_s/c_p = 3.0 (fixed HTAC concentration and varied PEO concentration after dialysis).
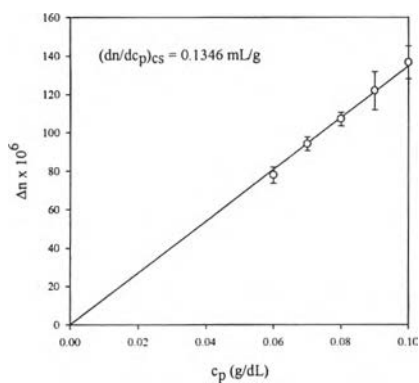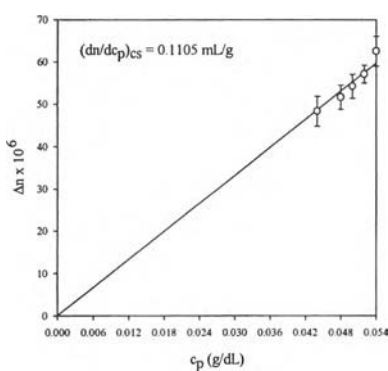

Figure 3.12 (B) dn/dc value for PEO + HTAC at c_s/c_p = 3.0 (fixed HTAC concentration and varied PEO concentration without dialysis).
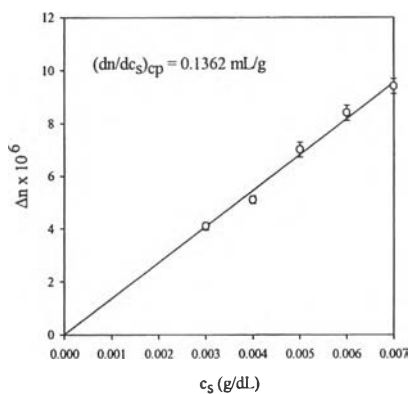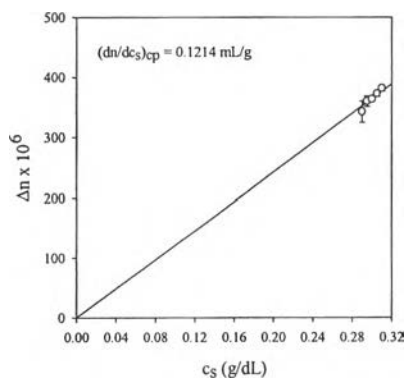

Figure 3.12 (C) dn/dc value for PEO + HTAC at c_s/c_p = 3.0 (fixed PEO concentration and varied HTAC concentration without dialysis).

3.2 Effect of polymer concentration

3.2.1 Data from viscosity measurement

(i) PEO ($M_w = 6 \times 10^5$ g/mol) 0.01 g/dL - HTAC in water at 30°C

η (cPs)	η_{sp}
0.8560	0.0700
1.3184	0.6480
1.3208	0.6510
0.8524	0.0655
0.8509	0.0636
0.8453	0.0566
0.8438	0.0548
0.8586	0.0732
0.8638	0.0798
0.8702	0.0878
0.8772	0.0965
0.8875	0.1094
0.8880	0.1100
0.8880	0.1100

(ii) PEO ($M_w = 6 \times 10^5$ g/mol) 0.03 g/dL - HTAC in water at 30°C

c_s (mM)	η (cPs)	η (cPs)	η_{sp}	η_{sp}	Std. deviation
0	1.1080	1.1080	0.3850	0.3850	± 0.000
0.6250	1.1074	1.1074	0.3842	0.3842	± 0.000
0.9375	1.1066	1.0978	0.3833	0.3722	± 0.008
1.2500	1.1062	1.1062	0.3827	0.3827	± 0.000
1.5625	1.1058	1.1120	0.3823	0.3900	± 0.005
2.5000	1.1042	1.1200	0.3802	0.4000	± 0.007
3.1250	1.1794	1.1794	0.4743	0.4743	± 0.000
3.9063	1.2048	1.2048	0.5060	0.5060	± 0.000
4.6875	1.2150	1.2150	0.5188	0.5188	± 0.000
5.0000	1.1916	1.1916	0.4895	0.4895	± 0.000
5.5000	1.1825	1.1825	0.4781	0.4781	± 0.000
6.2500	1.1784	1.1784	0.4730	0.4730	± 0.000
9.3750	1.1698	1.1698	0.4622	0.4622	± 0.000
12.500	1.1734	1.1734	0.4668	0.4668	± 0.000
15.625	1.1801	1.1801	0.4751	0.4751	± 0.000

(iii) PEO ($M_w = 6 \times 10^5$ g/mol) 0.05 g/dL - HTAC in water at 30°C

c_s (mM)	η (cPs)	η (cPs)	η_{sp}	η_{sp}	Std. deviation
0	0.9886	0.9886	0.2358	0.2358	± 0.000
0.0313	0.9905	0.9905	0.2381	0.2381	± 0.000
0.0938	0.9895	0.9895	0.2369	0.2369	± 0.000
0.1563	0.9934	0.9934	0.2417	0.2418	± 0.000
0.3125	0.9858	0.9858	0.2322	0.2322	± 0.000
0.6250	0.9839	0.9839	0.2299	0.2299	± 0.000
0.9375	1.0061	1.0061	0.2576	0.2576	± 0.000
1.2500	1.0044	1.0080	0.2555	0.2600	± 0.003
1.5625	1.0243	1.0440	0.2804	0.3050	± 0.017
2.3438	1.0482	1.0582	0.3103	0.3228	± 0.009
3.1250	1.0638	1.0778	0.3298	0.3472	± 0.012
3.9063	1.0520	1.0645	0.3150	0.3306	± 0.011
4.6875	1.0500	1.0602	0.3125	0.3253	± 0.009
5.4688	1.0467	1.0567	0.3084	0.3209	± 0.009
6.2500	1.0453	1.0560	0.3066	0.3200	± 0.010
7.8125	1.0427	1.0577	0.3034	0.3221	± 0.013
9.3750	1.0441	1.0515	0.3051	0.3144	± 0.007
12.500	1.0429	1.0629	0.3036	0.3286	± 0.018
15.625	1.0411	1.0722	0.3014	0.3389	± 0.027

(iv) PEO ($M_w = 6 \times 10^5$ g/mol) 0.08 g/dL - HTAC in water at 30°C

c_s (mM)	η (cPs)	η (cPs)	η_{sp}	η_{sp}	Std. deviation
0	0.9160	0.9200	0.1450	0.1500	± 0.004
0.3125	0.9142	0.9142	0.1427	0.1427	± 0.000
0.9375	0.9065	0.9065	0.1331	0.1331	± 0.000
1.5625	0.9247	0.9480	0.1559	0.1850	± 0.021
2.3438	0.9462	0.9560	0.1828	0.1950	± 0.009
3.1250	0.9400	0.9400	0.1750	0.1750	± 0.000
3.9063	0.9227	0.9308	0.1534	0.1635	± 0.007
4.6875	0.9268	0.9410	0.1585	0.1762	± 0.013
5.4688	0.9282	0.9409	0.1602	0.1761	± 0.011
6.2500	0.9278	0.9410	0.1598	0.1763	± 0.012
7.8125	0.9300	0.9404	0.1625	0.1755	± 0.009
9.3750	0.9320	0.9442	0.1650	0.1802	± 0.011
12.500	0.9360	0.9545	0.1700	0.1931	± 0.016
15.625	0.9360	0.9520	0.1700	0.1900	± 0.014

3.2.2 Data from dynamic light scattering measurement

(i) PEO ($M_w = 6 \times 10^5$ g/mol) 0.05 g/dL - HTAC in water at 30°C

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	5.0	5.2
0.6250	90	22.98	528.08	5.5	5.8
	110	26.61	708.09	6.1	5.9
	130	29.44	866.71	6.3	6.5

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	5.4	5.2
0.9375	90	22.98	528.08	5.8	5.4
	110	26.61	708.09	5.9	6.3
	130	29.44	866.71	6.3	6.6

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	5.2	5.5
1.2500	90	22.98	528.08	5.8	5.8
	110	26.61	708.09	6.3	6.0
	130	29.44	866.71	6.6	6.4

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	5.5	5.3
1.5625	90	22.98	528.08	5.7	6.1
	110	26.61	708.09	6.0	6.5
	130	29.44	866.71	6.6	6.8

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	4.0	4.3
2.3438	90	22.98	528.08	4.6	4.9
	110	26.61	708.09	4.8	5.3
	130	29.44	866.71	5.2	5.5

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	3.9	4.2
3.1250	90	22.98	528.08	4.6	4.9
	110	26.61	708.09	4.8	5.3
	130	29.44	866.71	5.0	5.6

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
3.9063	70	18.64	347.45	3.8	3.9
	90	22.98	528.08	4.0	4.4
	110	26.61	708.09	4.4	4.5
	130	29.44	866.71	4.5	4.8

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	4.4	4.2
4.6875	90	22.98	528.08	4.8	4.5
	110	26.61	708.09	4.9	5.3
	130	29.44	866.71	5.3	5.6

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
5.4688	70	18.64	347.45	4.7	5.2
	90	22.98	528.08	5.5	5.9
	110	26.61	708.09	6.2	6.5
	130	29.44	866.71	6.8	6.9
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
6.2500	70	18.64	347.45	5.3	5.1
	90	22.98	528.08	5.7	5.9
	110	26.61	708.09	6.3	6.5
	130	29.44	866.71	6.8	7.2
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
7.8125	70	18.64	347.45	5.3	5.4
	90	22.98	528.08	5.8	6.0
	110	26.61	708.09	6.4	6.8
	130	29.44	866.71	6.8	7.2
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
9.3750	70	18.64	347.45	5.8	5.4
	90	22.98	528.08	6.4	6.2
	110	26.61	708.09	7.0	6.8
	130	29.44	866.71	7.5	7.3
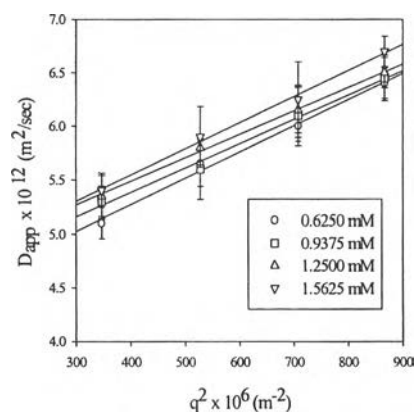
Figure 3.13 (A) D_{app} as a function of q^2 at different HTAC concentrations. PEO M_w: 6×10^5 g/mol, PEO concentration: 0.05 g/dL; HTAC concentrations: (O) 0.625 mM; (□) 0.938 mM; (Δ) 1.250 mM; and (∇) 1.563 mM.
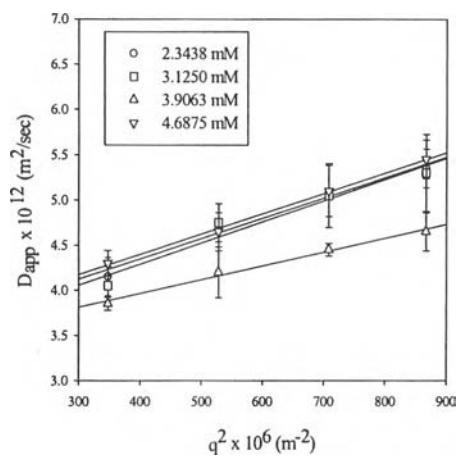
Figure 3.13 (B) D_{app} as a function of q^2 at different HTAC concentrations. PEO M_w: 6×10^5 g/mol, PEO concentration: 0.05 g/dL; HTAC concentrations: (O) 2.344 mM; (□) 3.125 mM; (Δ) 3.906 mM; and (∇) 4.688 mM.
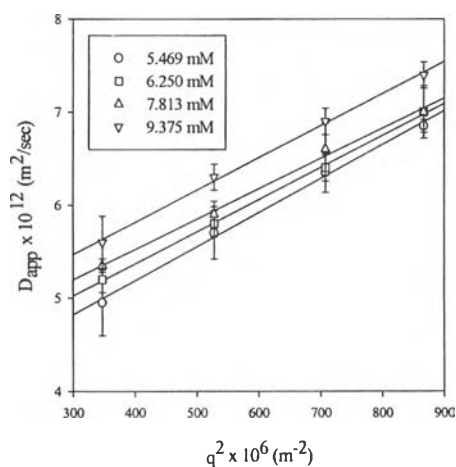
Figure 3.13 (C) D_{app} as a function of q^2 at different HTAC concentrations. PEO M_w: 6×10^5 g/mol, PEO concentration: 0.05 g/dL; HTAC concentrations: (O) 5.469 mM; (□) 6.250 mM; (Δ) 7.813 mM; and (∇) 9.375 mM.

(ii) PEO ($M_w = 6 \times 10^5$ g/mol) 0.08 g/dL - HTAC in water at 30°C

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.3125	70	18.64	347.45	6.0	6.9
	90	22.98	528.08	7.1	7.4
	110	26.61	708.09	7.4	7.9
	130	29.44	866.71	7.8	8.1
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.6250	70	18.64	347.45	5.2	5.5
	90	22.98	528.08	5.5	6.0
	110	26.61	708.09	6.1	6.5
	130	29.44	866.71	6.3	7.0
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.9375	70	18.64	347.45	4.2	4.5
	90	22.98	528.08	4.4	4.8
	110	26.61	708.09	4.6	4.8
	130	29.44	866.71	4.5	5.2
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
1.2500	70	18.64	347.45	4.5	4.8
	90	22.98	528.08	5.0	5.5
	110	26.61	708.09	5.2	5.6
	130	29.44	866.71	5.5	6.2
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
1.5625	70	18.64	347.45	5.3	5.5
	90	22.98	528.08	5.9	6.3
	110	26.61	708.09	6.9	7.0
	130	29.44	866.71	7.6	7.4
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
2.3438	70	18.64	347.45	5.0	5.4
	90	22.98	528.08	5.6	6.3
	110	26.61	708.09	6.8	6.9
	130	29.44	866.71	7.3	7.5
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
3.1250	70	18.64	347.45	5.0	4.5
	90	22.98	528.08	5.5	5.0
	110	26.61	708.09	5.0	6.0
	130	29.44	866.71	6.2	6.7
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
3.9063	70	18.64	347.45	5.0	4.5
	90	22.98	528.08	5.0	5.5
	110	26.61	708.09	5.5	5.8
	130	29.44	866.71	6.4	6.9

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	5.5	5.2
4.6875	90	22.98	528.08	6.5	7.0
	110	26.61	708.09	7.1	7.8
	130	29.44	866.71	7.4	9.0
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	6.0	5.8
6.2500	90	22.98	528.08	6.0	6.5
	110	26.61	708.09	6.5	7.5
	130	29.44	866.71	7.5	8.2
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{anp} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	5.8	6.3
9.3750	90	22.98	528.08	6.5	6.9
	110	26.61	708.09	7.3	7.2
	130	29.44	866.71	7.8	7.9
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	6.0	6.0
12.500	90	22.98	528.08	6.5	6.6
	110	26.61	708.09	6.6	6.9
	130	29.44	866.71	7.1	7.5
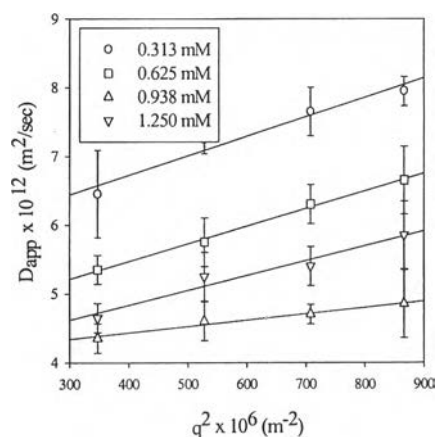
Figure 3.14 (A) D_{app} as a function of q^2 at different HTAC concentrations. PEO M_w: 6×10^5 g/mol, PEO concentration: 0.08 g/dL; HTAC concentrations: (O) 0.313 mM; ($\square$) 0.625 mM; ($\triangle$) 0.938 mM; and (∇) 1.250 mM.
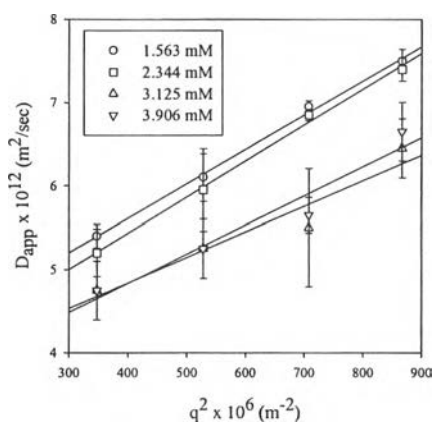
Figure 3.14 (B) D_{app} as a function of q^2 at different HTAC concentrations. PEO M_w: 6 x 10^5 g/mol, PEO concentration: 0.08 g/dL; HTAC concentrations: (O) 1.563 mM; (□) 2.344 mM; (Δ) 3.125 mM; and (∇) 3.906 mM.

Figure 3.14 (C) D_{app} as a function of q^2 at different HTAC concentrations. PEO M_w: 6 x 10^5 g/mol, PEO concentration: 0.08 g/dL; HTAC concentrations: (O) 4.688 mM; (□) 6.250 mM; (Δ) 9.375 mM; and (∇) 12.50 mM.

(iii) PEO (M_w = 6x10^5 g/mol) 0.05 g/dL - HTAC in water at 30°C

c_s (mM)	D_{cm} x 10^{12} (m^2/sec)	D_{cm} x 10^{12} (m^2/sec)	Std. deviation	R_h (nm)	R_h (nm)	Std. deviation
0.6250	4.256	4.289	± 0.020	64.18	64.65	± 0.33
0.9375	4.474	4.471	± 0.002	61.98	62.02	± 0.03
1.2500	4.597	4.610	± 0.009	60.32	60.15	± 0.12
1.5625	4.563	4.566	± 0.002	60.77	60.73	± 0.03
2.3438	3.422	3.446	± 0.017	81.03	80.47	± 0.40
3.1250	3.365	3.353	± 0.009	82.40	82.70	± 0.21
3.9063	3.348	3.351	± 0.002	82.82	82.75	± 0.05
4.6875	3.481	3.500	± 0.013	79.66	79.23	± 0.30
5.4688	3.705	3.720	± 0.011	74.84	74.54	± 0.21
6.2500	3.966	3.987	± 0.015	69.92	69.55	± 0.26
7.8125	4.200	4.218	± 0.013	66.02	65.74	± 0.20
9.3750	4.457	4.433	± 0.017	62.21	62.55	± 0.24

(iv) PEO (M_w = 6x10^5 g/mol) 0.08 g/dL - HTAC in water at 30°C

c_s (mM)	D_{cm} x 10^{12} (m^2/sec)	D_{cm} x 10^{12} (m^2/sec)	Std. deviation	R_h (nm)	R_h (nm)	Std. deviation
0.3125	5.3195	5.8595	± 0.38	45.00	46.21	± 0.86
0.6250	4.3627	4.5227	± 0.11	47.21	52.01	± 3.39
0.9375	3.9902	4.1302	± 0.10	61.29	63.53	± 1.58
1.2500	3.9867	4.2667	± 0.20	67.11	69.49	± 1.68
1.5625	3.9651	4.3851	± 0.30	69.93	63.23	± 4.74
2.3438	3.7021	3.7021	± 0.00	74.90	74.90	± 0.00
3.1250	3.6174	3.6174	± 0.00	76.65	76.65	± 0.00
3.9063	3.4408	3.4408	± 0.00	80.59	80.59	± 0.00
4.6875	3.6686	3.6686	± 0.00	75.58	75.58	± 0.00
6.2500	4.4355	4.4355	± 0.00	62.52	62.52	± 0.00
9.3750	4.8650	4.8650	± 0.00	57.00	57.00	± 0.00
12.500	4.9990	5.4190	± 0.30	55.47	51.17	± 3.04
15.625	5.4285	5.0070	± 0.30	51.08	55.38	± 3.04

3.3 Effect of temperature

3.3.1 Data from conductivity measurement

(i) PEO 0.1 g/dL-HTAC at 25°C

c_s (mM)	Conductance (μS/cm)	Conductance (μS/cm)	Standard deviation
0	19	19	± 0.00
0.0781	22	25	± 2.12
0.1563	32	29	± 2.12
0.2344	40	40	± 0.00
0.3125	42	46	± 2.83
0.3906	49	49	± 0.00
0.4688	57	62	± 3.54
0.5000	57	57	± 0.00
0.5625	60	60	± 0.00
0.6250	68	75	± 4.95
0.6875	73	73	± 0.00
0.7813	74	85	± 7.78
0.9375	90	90	± 0.00
1.2500	105	105	± 0.00
1.5625	125	120	± 3.54
1.8750	140	130	± 7.07
2.5000	158	158	± 0.00
3.1250	182	182	± 0.00

(ii) PEO 0.1 g/dL-HTAC at 27°C

c_s (mM)	Conductance (μS/cm)	Conductance (μS/cm)	Standard deviation
0	19.0	19.4	± 0.28
0.0156	26.7	26.2	± 0.35
0.0781	32.2	33.0	± 0.57
0.1563	35.2	35.0	± 0.14
0.1875	37.4	37.0	± 0.28
0.2188	39.6	39.0	± 0.42
0.2500	41.8	41.2	± 0.42
0.3125	49.9	48.9	± 0.71
0.3750	53.4	52.4	± 0.71
0.4688	54.3	54.0	± 0.21
0.6250	62.5	62.2	± 0.21
0.7031	68.5	67.5	± 0.71
0.7813	75.4	74.4	± 0.71
0.9375	85.5	84.5	± 0.71
1.2500	105	104	± 0.71
1.5625	132	122	± 0.71
2.5000	170	171	± 0.71
3.1250	205	206	± 0.71
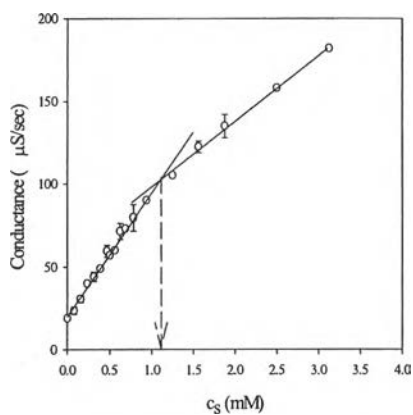
Figures 3.15 (A) The variation of conductivity vs. HTAC concentration in the presence of PEO ($M_w = 6 \times 10^5$ g/mol; $c_p = 0.1$ g/dL) at 25°C.
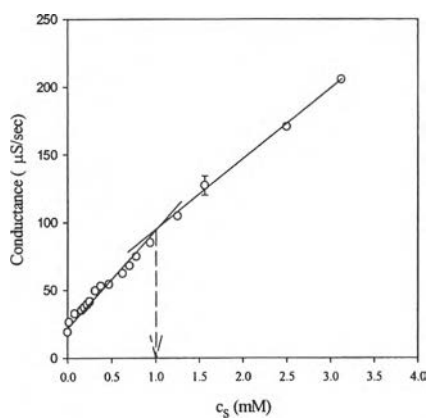
Figures 3.15 (B) The variation of conductivity vs. HTAC concentration in the presence of PEO ($M_w = 6 \times 10^5$ g/mol; $c_p = 0.1$ g/dL) at 27°C.

(iii) PEO 0.1 g/dL-HTAC at 28°C

c_s (mM)	Conductance (μS/cm)	Conductance (μS/cm)	Standard deviation
0	19	19	± 0.00
0.0781	24	26	± 1.41
0.1563	35	31	± 2.83
0.2344	40	40	± 0.00
0.3125	50	46	± 2.83
0.3906	57	57	± 0.00
0.4688	65	59	± 4.24
0.5000	66	66	± 0.00
0.5625	70	70	± 0.00
0.6250	72	74	± 1.41
0.6875	78	78	± 0.00
0.7813	90	90	± 0.00
0.9375	93	98	± 3.54
1.2500	116	116	± 0.00
1.5625	138	138	± 0.00

(iv) PEO 0.1 g/dL-HTAC at 30°C

c_s (mM)	Conductance (μS/cm)	Conductance (μS/cm)	Standard deviation
0	19	19	± 0.00
0.0781	26	26	± 0.00
0.1563	35	31	± 2.83
0.2344	45	45	± 0.00
0.3125	50	46	± 2.83
0.3906	57	57	± 0.00
0.4688	65	59	± 4.24
0.5000	66	66	± 0.00
0.5625	68	68	± 0.00
0.6250	72	69	± 2.12
0.6875	78	78	± 0.00
0.7781	79	80	± 0.71
0.9375	93	93	± 0.00
1.2500	110	110	± 0.00
1.5625	135	135	± 0.00
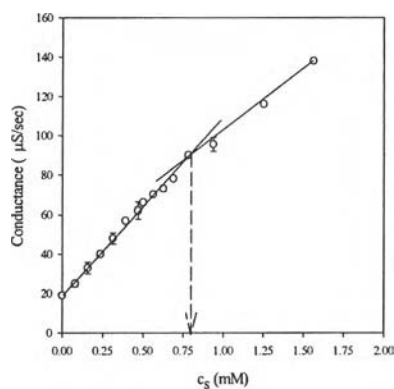
Figures 3.15 (C) The variation of conductivity vs. HTAC concentration in the presence of PEO (M_w = 6 x 10^5 g/mol; c_p = 0.1 g/dL) at $28^°$C.
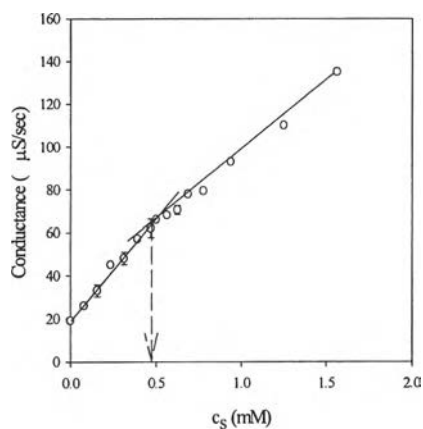
Figures 3.15 (D) The variation of conductivity vs. HTAC concentration in the presence of PEO (M_w = 6 x 10^5 g/mol; c_p = 0.1 g/dL) at $30^°$C.

(v) PEO 0.1 g/dL-HTAC at 35°C

c_s (mM)	Conductance (µS/cm)	Conductance (µS/cm)	Standard deviation
0	20	20	± 0.00
0.0781	26	24	± 1.41
0.1563	36	32	± 2.83
0.2344	47	47	± 0.00
0.3125	48	49	± 0.71
0.3906	58	58	± 0.00
0.4688	64	69	± 3.54
0.5000	66	66	± 0.00
0.5625	69	69	± 0.00
0.6250	76	75	± 0.71
0.6875	82	82	± 0.00
0.7813	87	80	± 4.95
0.9375	97	97	± 0.00
1.2500	120	120	± 0.00
1.5625	141	141	± 0.00

(vi) PEO 0.1 g/dL-HTAC at 40°C

c_s (mM)	Conductance (µS/cm)	Conductance (µS/cm)	Standard deviation
0	20	20	± 0.00
0.0781	29	26	± 2.12
0.1563	42	32	± 7.07
0.2344	52	52	± 0.00
0.3125	58	48	± 7.07
0.3906	65	65	± 0.00
0.4688	68	60	± 5.66
0.5000	72	72	± 0.00
0.5625	75	75	± 0.00
0.6250	78	70	± 5.66
0.6875	84	84	± 0.00
0.7813	90	81	± 6.36
0.9375	101	101	± 0.00
1.2500	128	128	± 0.00
1.5625	149	149	± 0.00
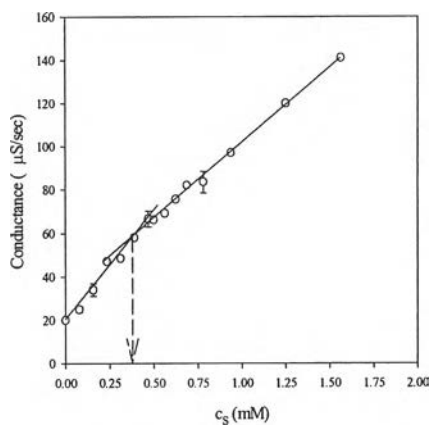
Figures 3.15 (E) The variation of conductivity vs. HTAC concentration in the presence of PEO ($M_w = 6$ x 10^5 g/mol; $c_p = 0.1$ g/dL) at $35°C$.
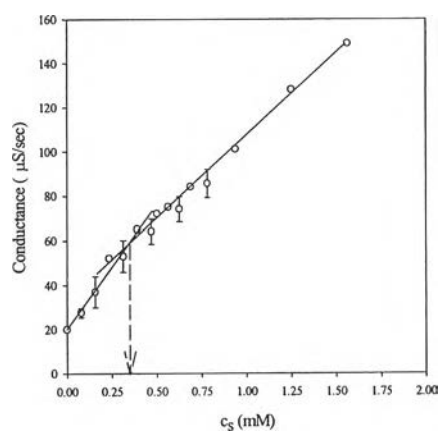
Figures 3.15 (F) The variation of conductivity vs. HTAC concentration in the presence of PEO ($M_w = 6$ x 10^5 g/mol; $c_p = 0.1$ g/dL) at $40°C$.

(vii) PEO 0.1 g/dL-HTAC at 45°C

c_s (mM)	Conductance (μS/cm)	Conductance (μS/cm)	Standard deviation
0	20	20	± 0.00
0.0781	31	25	± 4.24
0.1563	44	35	± 6.36
0.2344	55	55	± 0.00
0.3125	62	48	± 9.90
0.3906	68	68	± 0.00
0.4688	75	63	± 8.49
0.5000	78	78	± 0.00
0.5625	80	76	± 2.83
0.6250	84	84	± 0.00
0.6875	86	86	± 0.00
0.7813	96	96	± 0.00
0.9375	104	104	± 0.00
1.2500	130	130	± 0.00
1.5625	150	150	± 0.00

(viii) PEO 0.1 g/dL-HTAC at 50°C

c_s (mM)	Conductance (μS/cm)	Conductance (μS/cm)	Standard deviation
0	20	20	± 0.00
0.0781	31	25	± 4.24
0.1563	48	33	± 10.61
0.2344	60	60	± 0.00
0.3125	65	50	± 10.61
0.3906	74	74	± 0.00
0.4688	77	65	± 8.49
0.5000	80	80	± 0.00
0.5625	84	84	± 0.00
0.6250	90	78	± 8.49
0.6875	90	90	± 0.00
0.7813	105	90	± 10.61
0.9375	108	108	± 0.00
1.2500	141	131	± 7.07
1.5625	153	153	± 0.00
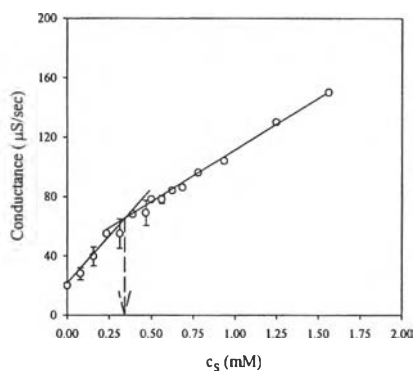
Figures 3.15 (G) The variation of conductivity vs. HTAC concentration in the presence of PEO (M_w = 6 x 10^5 g/mol; c_p = 0.1 g/dL) at 45°C.
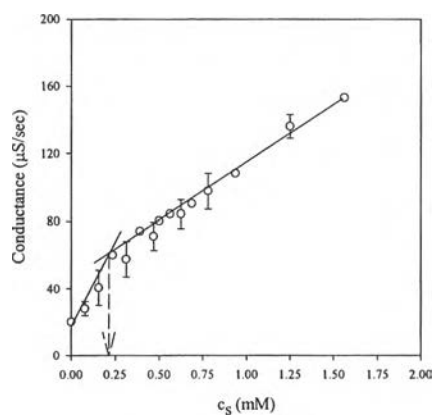
Figures 3.15 (H) The variation of conductivity vs. HTAC concentration in the presence of PEO (M_w = 6 x 10^5 g/mol; c_p = 0.1 g/dL) at 50°C.

(ix) PEO (0.1 g/dL) – HTAC at different temperatures

Temperature (°C)	cac (mM)
25	1.125
27	1.000
28	0.781
30	0.469
35	0.375
40	0.375
45	0.313
50	0.219

3.3.2 Data from viscosity measurement

(i) PEO ($M_w = 6 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 25°C

c_s (mM)	η_{sp}	η_{sp}	Std. deviation
0	0.5142	0.5142	± 0.000
0.1563	0.4989	0.4989	± 0.000
0.3125	0.4884	0.4884	± 0.000
0.7813	0.4734	0.4734	± 0.000
2.3438	0.4843	0.4843	± 0.000
3.1250	0.5045	0.5045	± 0.000
4.6875	0.5115	0.5115	± 0.000
6.2500	0.5290	0.510	± 0.013
9.3750	0.5362	0.520	± 0.012
12.500	0.5400	0.530	± 0.007
15.625	0.5450	0.530	± 0.011

(ii) PEO ($M_w = 6 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 35°C

c_s (mM)	η_{sp}	η_{sp}	Std. deviation
0	0.4457	0.4420	± 0.003
0.1563	0.4376	0.4360	± 0.001
0.4688	0.4255	0.4250	± 0.001
0.9375	0.4153	0.4160	± 0.001
1.5621	0.4459	0.4550	± 0.006
2.3438	0.5992	0.6992	± 0.071
3.1250	0.7750	0.7650	± 0.007
3.9063	0.7894	0.7994	± 0.007
4.6875	0.8190	0.8180	± 0.001
5.4688	0.8000	0.7900	± 0.007
6.2500	0.7300	0.7500	± 0.014
7.8125	0.7041	0.7000	± 0.003
9.3750	0.6717	0.6617	± 0.007
12.500	0.6413	0.6313	± 0.007
15.625	0.6300	0.6200	± 0.007

(iii) PEO ($M_w = 6 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 40°C

c_s (mM)	η_{sp}	η_{sp}	Std. deviation
0	0.4334	0.4534	± 0.014
0.0313	0.4281	0.4482	± 0.014
0.0938	0.4257	0.4357	± 0.007
0.1563	0.4216	0.4316	± 0.007
0.4688	0.4060	0.4000	± 0.004
0.7813	0.3878	0.3668	± 0.015
1.5625	0.4449	0.4249	± 0.014
2.3438	0.7580	0.6980	± 0.042
3.1250	0.9586	0.9286	± 0.021
3.9063	0.9776	0.9976	± 0.014
4.6875	1.0128	1.0028	± 0.007
5.4688	0.9895	0.9475	± 0.030
6.2500	0.9374	0.9274	± 0.007
7.8125	0.8994	0.8894	± 0.007
9.3753	0.8491	0.8291	± 0.014
12.500	0.7791	0.7781	± 0.001
15.625	0.7500	0.7600	± 0.007

(iv) PEO (0.1 g/dL)–HTAC (0.16 mM) at different temperatures

Temperature (°C)	η_{sp}	η_{sp}	Std. deviation
25	0.4729	0.4719	± 0.001
30	0.4405	0.4395	± 0.001
35	0.4275	0.4295	± 0.002
40	0.4069	0.4059	± 0.001
45	0.3797	0.3787	± 0.001
50	0.3589	0.3489	± 0.007

(v) PEO (0.1 g/dL)–HTAC (0.5 mM) at different temperatures

Temperature (°C)	η_{sp}	η_{sp}	Std. deviation
25	0.4155	0.4185	± 0.002
30	0.3868	0.3768	± 0.007
35	0.3723	0.3693	± 0.002
40	0.3420	0.3400	± 0.001
45	0.3273	0.2973	± 0.021
50	0.3093	0.2883	± 0.015

(vi) PEO (0.1 g/dL)–HTAC (2.5 mM) at different temperatures

Temperature (°C)	η_{sp}	η_{sp}	Std. deviation
25	0.4843	0.4743	± 0.007
30	0.5085	0.5144	± 0.004
35	0.5992	0.6192	± 0.021
40	0.6967	0.6667	± 0.021
45	0.8027	0.8127	± 0.007
50	0.9500	0.9000	± 0.035

(vii) PEO (0.1 g/dL)–HTAC (5 mM) at different temperatures

Temperature (°C)	η_{sp}	η_{sp}	Std. deviation
25	0.4732	0.4732	±0.000
30	0.6478	0.5895	± 0.043
35	0.7376	0.7800	± 0.030
40	0.9089	1.0128	± 0.074
45	1.1583	1.1105	± 0.034
50	1.3295	1.2696	± 0.042

3.3.3 Data from dynamic light scattering measurement

(i) PEO ($M_w = 6 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 35°C

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0	70	18.64	347.45	9.3	9.5
	90	22.98	528.08	9.9	10.2
	110	26.61	708.09	10.5	10.7
	130	29.44	866.71	10.7	11.0
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.156	70	18.64	347.45	9.5	9.8
	90	22.98	528.08	10.0	10.2
	110	26.61	708.09	10.5	10.7
	130	29.44	866.71	10.7	11.0
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.469	70	18.64	347.45	7.2	7.2
	90	22.98	528.08	7.8	7.9
	110	26.61	708.09	8.4	8.2
	130	29.44	866.71	8.6	8.7
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.938	70	18.64	347.45	6.9	7.3
	90	22.98	528.08	7.3	7.6
	110	26.61	708.09	8.2	8.2
	130	29.44	866.71	8.5	8.5
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
1.563	70	18.64	347.45	6.5	7.2
	90	22.98	528.08	7.9	8.1
	110	26.61	708.09	8.3	8.6
	130	29.44	866.71	8.7	8.9
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
3.907	70	18.64	347.45	5.9	6.4
	90	22.98	528.08	7.5	8.5
	110	26.61	708.09	8.7	9.3
	130	29.44	866.71	11.0	10.9
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
4.688	70	18.64	347.45	5.3	7.1
	90	22.98	528.08	7.3	8.3
	110	26.61	708.09	9.2	10.5
	130	29.44	866.71	10.7	11.5
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
6.250	70	18.64	347.45	5.5	5.9
	90	22.98	528.08	6.0	6.6
	110	26.61	708.09	7.2	7.6
	130	29.44	866.71	8.2	8.6

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	6.4	6.8
9.375	90	22.98	528.08	7.2	7.6
	110	26.61	708.09	8.2	8.8
	130	29.44	866.71	9.4	9.7
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	7.4	7.9
12.50	90	22.98	528.08	8.4	9.0
	110	26.61	708.09	10.1	10.6
	130	29.44	866.71	11.0	11.5
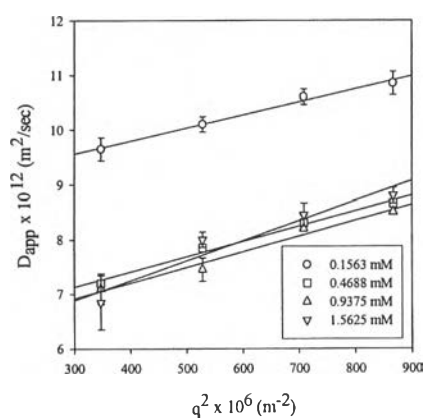
Figure 3.16 (A) D_{app} as a function of q^2 at different HTAC concentrations at $35°C$. PEO: M_w = 6 x 10^5 g/mol, c_p = 0.1 g/dL; HTAC concentrations: (O) 0.156 mM; (□) 0.469 mM; (Δ) 0.938 mM; and (∇) 1.563 mM.
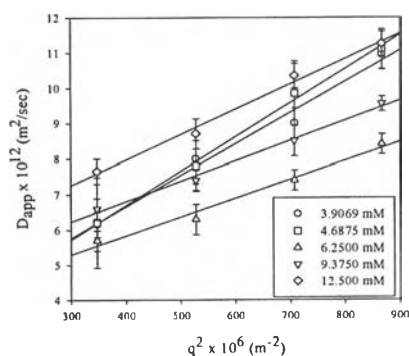
Figure 3.16 (B) D_{app} as a function of q^2 at different HTAC concentrations at $35°C$. PEO: M_w = 6 x 10^5 g/mol, c_p = 0.1 g/dL; HTAC concentrations: (O) 3.907 mM; (□) 4.688 mM; (Δ) 6.250 mM; (∇) 9.375 mM; and (◊) 12.5 mM.

(ii) PEO ($M_w = 6 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 40°C

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	11.0	11.5
0.156	90	22.98	528.08	11.6	11.7
	110	26.61	708.09	12.2	12.5
	130	29.44	866.71	12.4	12.8
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	10.6	9.9
0.469	90	22.98	528.08	10.5	11.2
	110	26.61	708.09	11.8	12.6
	130	29.44	866.71	12.5	13.8
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	9.8	10.0
0.625	90	22.98	528.08	10.3	10.8
	110	26.61	708.09	11.6	12.5
	130	29.44	866.71	12.8	13.5
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	9.5	9.9
0.938	90	22.98	528.08	10.2	10.7
	110	26.61	708.09	11.5	12.3
	130	29.44	866.71	13.5	13.0
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	9.2	9.8
1.250	90	22.98	528.08	10.0	10.5
	110	26.61	708.09	11.4	12.0
	130	29.44	866.71	12.8	13.5
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	9.0	8.5
1.563	90	22.98	528.08	10.0	10.2
	110	26.61	708.09	11.2	11.8
	130	29.44	866.71	12.0	12.8
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	4.8	5.2
3.125	90	22.98	528.08	5.8	6.2
	110	26.61	708.09	7.2	7.5
	130	29.44	866.71	8.2	8.5
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	4.5	5.1
4.688	90	22.98	528.08	5.2	5.8
	110	26.61	708.09	6.6	7.3
	130	29.44	866.71	8.0	8.4

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
6.250	70	18.64	347.45	5.2	4.5
	90	22.98	528.08	5.8	6.2
	110	26.61	708.09	6.8	7.2
	130	29.44	866.71	7.5	7.9
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
7.813	70	18.64	347.45	5.0	5.5
	90	22.98	528.08	5.9	6.5
	110	26.61	708.09	6.8	7.4
	130	29.44	866.71	7.5	8.2
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
9.375	70	18.64	347.45	5.2	5.8
	90	22.98	528.08	6.1	6.5
	110	26.61	708.09	6.7	7.2
	130	29.44	866.71	7.6	8.4
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
10.938	70	18.64	347.45	5.3	5.9
	90	22.98	528.08	6.2	6.6
	110	26.61	708.09	6.9	7.5
	130	29.44	866.71	7.4	8.2
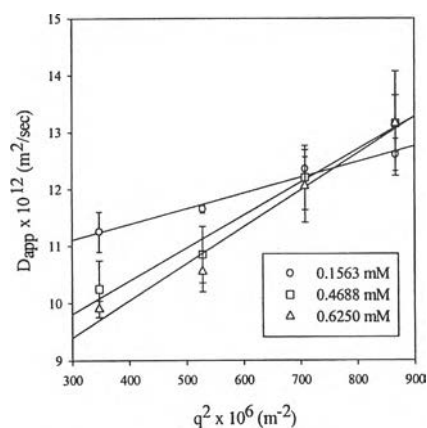
Figure 3.17 (A) D_{app} as a function of q^2 at different HTAC concentrations at 40°C. PEO: M_w = 6 x 10^5 g/mol, c_p = 0.1 g/dL; HTAC concentrations: (O) 0.156 mM; ($\square$) 0.469 mM; and (Δ) 0.625 mM.
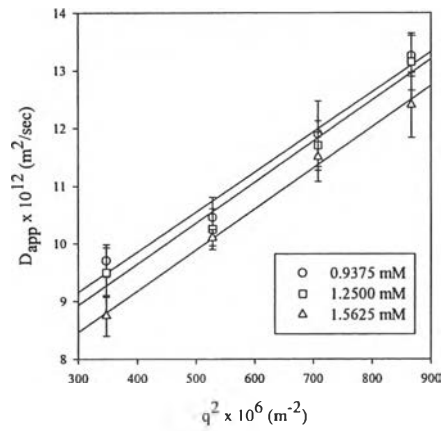
Figure 3.17 (B) D_{app} as a function of q^2 at different HTAC concentrations at 40°C. PEO: M_w = 6 x 10^5 g/mol, c_p = 0.1 g/dL; HTAC concentrations: (O) 0.938 mM; (□) 1.25 mM; and (Δ) 1.563 mM.
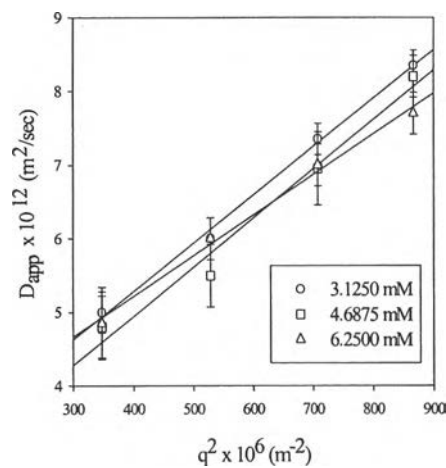
Figure 3.17 (C) D_{app} as a function of q^2 at different HTAC concentrations at 40°C. PEO: M_w = 6 x 10^5 g/mol, c_p = 0.1 g/dL; HTAC concentrations: (O) 3.125 mM; (□) 4.688 mM; and (Δ) 6.250 mM.
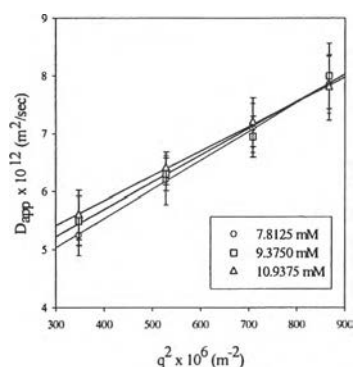
Figure 3.17 (D) D_{app} as a function of q^2 at different HTAC concentrations at $40°C$. PEO: M_w = 6 x 10^5 g/mol, c_p = 0.1 g/dL; HTAC concentrations: (O) 7.813 mM; (□) 9.375 mM; and (Δ) 10.938 mM.

(iii) PEO (M_w = $6x10^5$ g/mol) 0.1 g/dL - HTAC in water at $35°C$

c_s (mM)	D_{cm} x 10^{12} (m^2/sec)	D_{cm} x 10^{12} (m^2/sec)	Std. deviation	R_h (nm)	R_h (nm)	Std. deviation
0	8.2896	8.6896	± 0.28	36.02	37.76	± 1.23
0.1563	8.7430	8.9630	± 0.16	34.94	35.81	± 0.62
0.4688	6.0933	6.5133	± 0.30	48.03	51.35	± 2.35
0.9375	6.0645	6.0645	± 0.00	51.64	51.64	± 0.00
1.5625	5.3310	6.2510	± 0.65	49.78	58.38	± 6.08
3.1250	2.5613	3.6613	± 0.78	100.66	100.66	± 0.00
4.6875	2.5263	3.1063	± 0.41	99.76	122.64	± 16.18
6.2500	3.3864	4.0464	± 0.47	76.79	91.75	± 10.58
9.3750	4.2825	4.7425	± 0.33	65.86	72.94	± 5.01
12.500	4.7839	5.4039	± 0.44	57.74	65.22	± 5.29

(iv) PEO (M_w = $6x10^5$ g/mol) 0.1 g/dL - HTAC in water at $40°C$

c_s (mM)	D_{cm} x 10^{12} (m^2/sec)	D_{cm} x 10^{12} (m^2/sec)	Std. deviation	R_h (nm)	R_h (nm)	Std. deviation
0	9.9126	10.1326	± 0.16	34.26	35.02	± 0.54
0.1563	10.2186	11.4986	± 0.91	30.09	33.85	± 2.66
0.4688	7.6861	8.4661	± 0.55	40.91	45.07	± 2.94
0.6250	7.0053	7.9053	± 0.64	43.76	49.38	± 3.97
0.9375	7.2337	7.5437	± 0.22	45.82	52.34	± 4.61
1.2500	6.2757	7.3157	± 0.74	47.18	55.00	± 5.53
1.5625	6.1258	6.5258	± 0.28	53.16	56.62	± 2.45
3.1250	2.4873	2.8373	± 0.25	122.31	139.01	± 11.81
4.6875	1.8079	2.7279	± 0.65	153.09	153.09	± 0.00
6.2500	2.8236	3.2036	± 0.27	107.94	122.48	± 10.28
7.8125	3.4812	3.5812	± 0.07	96.93	99.71	± 1.97
9.3750	3.5551	4.0951	± 0.38	84.37	97.17	± 9.05
10.938	4.0686	4.2086	± 0.10	82.47	85.31	± 2.01

3.4 Effect of molecular weight

3.4.1 Data from viscosity measurement

(i) PEO ($M_w = 1 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 30°C

c_s (mM)	η_{sp}	η_{sp}	Std. deviation
0	0.0935	0.0935	± 0.000
0.1563	0.0927	0.0910	± 0.001
0.7813	0.0912	0.0900	± 0.001
1.5625	0.0869	0.0861	± 0.001
3.1250	0.1152	0.1144	± 0.001
3.9063	0.1166	0.1163	± 0.001
4.6875	0.1261	0.1251	± 0.001
5.4688	0.1287	0.1270	± 0.002
6.2500	0.1298	0.1290	± 0.001
7.0313	0.1313	0.1311	± 0.001
7.8125	0.1354	0.1364	± 0.001
9.3750	0.1483	0.1463	± 0.002
12.500	0.1513	0.1510	± 0.001
15.625	0.1533	0.1523	± 0.001

(ii) PEO ($M_w = 6 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 30°C

c_s (mM)	η_{sp}	η_{sp}	Std. deviation
0	0.4736	0.4686	± 0.004
0.0313	0.4766	0.4766	± 0.000
0.0625	0.4725	0.4725	± 0.000
0.0938	0.4699	0.4699	± 0.000
0.1250	0.4626	0.4626	± 0.000
0.1563	0.4641	0.4600	± 0.003
0.3125	0.4595	0.4595	± 0.000
0.6250	0.4588	0.4588	± 0.000
0.9375	0.4411	0.4700	± 0.020
1.2500	0.4622	0.4800	± 0.013
1.5625	0.5261	0.5000	± 0.019
3.125	0.5714	0.5714	± 0.000
4.6875	0.6294	0.6478	± 0.013
6.2500	0.6190	0.6384	± 0.014
7.8125	0.5929	0.6301	± 0.026
9.3750	0.5911	0.6001	± 0.006
12.500	0.6049	0.5850	± 0.014
15.625	0.6081	0.5869	± 0.015

(iii) PEO ($M_w = 9 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 30°C

c_s (mM)	η_{sp}	η_{sp}	Std. deviation
0	0.6019	0.6000	± 0.001
0.1563	0.5816	0.5816	± 0.000
0.7813	0.5783	0.5763	± 0.002
1.5625	0.5907	0.5887	± 0.002
2.3438	0.7514	0.7504	± 0.001
3.1250	0.8075	0.8070	± 0.001
3.9063	0.8379	0.8360	± 0.001
4.6875	0.7808	0.7708	± 0.007
6.2500	0.7600	0.7610	± 0.001
7.8125	0.7545	0.7535	± 0.001
9.3750	0.7581	0.7561	± 0.002
12.500	0.7279	0.7269	± 0.001
15.625	0.7200	0.7100	± 0.007

(iv) PEO ($M_w = 4 \times 10^6$ g/mol) 0.1 g/dL - HTAC in water at 30°C

c_s (mM)	η_{sp}	η_{sp}	Std. deviation
0	1.4064	1.4054	± 0. 001
0.1563	1.4362	1.4352	± 0.001
0.3125	1.4465	1.4435	± 0.002
0.7813	1.4754	1.4764	± 0.001
1.5625	1.5033	1.5023	± 0.001
2.3438	1.8754	1.8724	± 0.002
3.1250	1.9277	1.9267	± 0.001
3.9063	1.9260	1.9250	± 0.002
4.6875	1.8494	1.8490	± 0.001
6.2500	1.7926	1.7920	± 0.001
9.3750	1.6373	1.6363	± 0.002
12.500	1.6281	1.6271	± 0.002
15.625	1.6235	1.6245	± 0.002

(v) PEO ($M_w = 6 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 30°C

c_s (mM)	η_{sp} (PEO+HTAC)/ η_{sp} (PEO)	η_{sp} (PEO+HTAC)/ η_{sp} (PEO)	Std. deviation
0	1.0000	1.0000	± 0.000
0.1563	0.9799	0.9816	± 0.001
0.3125	0.9702	0.9806	± 0.007
0.6250	0.9688	0.9791	± 0.007
0.9375	0.9314	1.0030	± 0.051
1.2500	0.9761	1.0243	± 0.034
1.5625	1.1109	1.0670	± 0.031
2.3438	1.0800	1.1400	± 0.042
3.1250	1.2065	1.2194	± 0.009
3.9063	1.2971	1.3329	± 0.025
4.6875	1.4120	1.4270	± 0.011
5.4688	1.3108	1.3826	± 0.051
6.2500	1.3074	1.3624	± 0.039
7.8125	1.2519	1.3446	± 0.066
9.3750	1.2217	1.2806	± 0.042
12.500	1.2352	1.2484	± 0.009
15.625	1.2340	1.2471	± 0.009

(vi) PEO ($M_w = 9 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 30°C

c_s (mM)	η_{sp} (PEO+HTAC)/ η_{sp} (PEO)	η_{sp} (PEO+HTAC)/ η_{sp} (PEO)	Std. deviation
0	1.0000	1.0000	± 0.000
0.1563	0.9663	0.9643	± 0.002
0.7813	0.9608	0.9508	± 0.007
1.5625	1.0872	1.0862	± 0.001
2.3438	1.2484	1.2514	± 0.002
3.1250	1.3416	1.3406	± 0.001
3.9063	1.3921	1.3901	± 0.002
4.6875	1.2972	1.2942	± 0.002
6.2500	1.2627	1.2647	± 0.002
7.8125	1.2535	1.2525	± 0.001
9.3750	1.2263	1.2233	± 0.002
12.500	1.2093	1.2063	± 0.002
15.625	1.1962	1.1952	± 0.001

(vii) PEO ($M_w = 4 \times 10^6$ g/mol) 0.1 g/dL - HTAC in water at 30°C

c_s (mM)	η_{sp} (PEO+HTAC)/ η_{sp} (PEO)	η_{sp} (PEO+HTAC)/ η_{sp} (PEO)	Std. deviation
0	1.0000	1.0000	± 0.000
0.1563	1.0212	1.0222	± 0.001
0.3125	1.0285	1.0265	± 0.002
0.7813	1.0491	1.0461	± 0.002
1.5625	1.0689	1.0679	± 0.001
2.3438	1.2711	1.2701	± 0.001
3.1250	1.3772	1.3792	± 0.002
3.9063	1.3695	1.3675	± 0.002
4.6875	1.3150	1.3140	± 0.001
6.2500	1.2746	1.2726	± 0.002
9.3750	1.1642	1.1632	± 0.001
12.500	1.1576	1.1566	± 0.001
15.625	1.1544	1.1524	± 0.002

3.4.2 Data from dynamic light scattering measurement

(i) PEO ($M_w = 9 \times 10^5$ g/mol) 0.1 g/dL - HTAC in water at 30°C

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.0313	70	18.64	347.45	6.6	6.4
	90	22.98	528.08	6.9	6.8
	110	26.61	708.09	7.2	7.3
	130	29.44	866.71	7.6	7.5
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.0780	70	18.64	347.45	6.9	7.2
	90	22.98	528.08	7.5	7.8
	110	26.61	708.09	8.7	8.4
	130	29.44	866.71	9.5	9.2

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	5.3	4.8
0.3125	90	22.98	528.08	5.8	6.0
	110	26.61	708.09	6.3	6.5
	130	29.44	866.71	7.5	6.8
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	4.7	5.8
0.7813	90	22.98	528.08	6.2	6.5
	110	26.61	708.09	6.6	6.8
	130	29.44	866.71	7.5	7.9
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	5.4	5.9
1.5625	90	22.98	528.08	6.0	6.6
	110	26.61	708.09	7.0	7.5
	130	29.44	866.71	8.0	8.2
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	5.2	4.7
2.3438	90	22.98	528.08	5.8	6.2
	110	26.61	708.09	6.5	7.3
	130	29.44	866.71	7.5	7.9
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	7.0	7.6
3.1250	90	22.98	528.08	9.5	10.1
	110	26.61	708.09	11.9	12.5
	130	29.44	866.71	13.8	14.2
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	6.8	7.1
3.9063	90	22.98	528.08	8.8	9.8
	110	26.61	708.09	11.6	12.2
	130	29.44	866.71	13.9	13.5
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	4.3	4.5
4.6875	90	22.98	528.08	5.0	5.4
	110	26.61	708.09	6.1	6.4
	130	29.44	866.71	6.5	7.6
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	4.4	4.9
6.2500	90	22.98	528.08	5.2	5.8
	110	26.61	708.09	6.7	6.5
	130	29.44	866.71	7.4	7.1
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
	70	18.64	347.45	5.2	5.3
9.3750	90	22.98	528.08	5.8	6.4
	110	26.61	708.09	6.5	7.4
	130	29.44	866.71	7.7	8.3

| c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
12.500	70	18.64	347.45	4.6	4.9
	90	22.98	528.08	6.2	6.2
	110	26.61	708.09	7.3	7.0
	130	29.44	866.71	8.1	8.1
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
15.625	70	18.64	347.45	5.3	5.9
	90	22.98	528.08	6.0	6.4
	110	26.61	708.09	7.0	7.5
	130	29.44	866.71	8.0	9.0
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
18.750	70	18.64	347.45	5.4	5.9
	90	22.98	528.08	6.8	6.1
	110	26.61	708.09	7.3	7.8
	130	29.44	866.71	8.6	8.8
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
25.000	70	18.64	347.45	5.9	5.5
	90	22.98	528.08	6.9	6.7
	110	26.61	708.09	8.0	7.7
	130	29.44	866.71	9.0	8.7
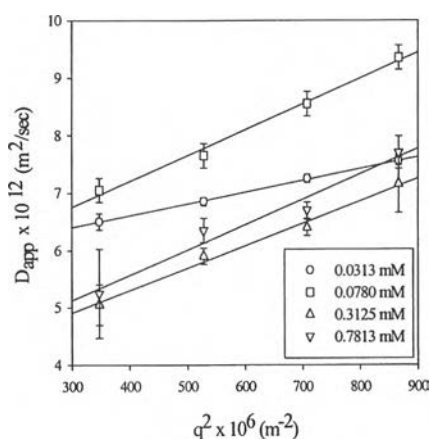
Figure 3.18 (A) D_{app} as a function of q^2 at different HTAC concentrations at 30°C. PEO: M_w = 1 x 10^5 g/mol, c_p = 0.1 g/dL; HTAC concentrations: (O) 0.031 mM; (□) 0.078 mM; (Δ) 0.313 mM; and (∇) 0.781 mM.
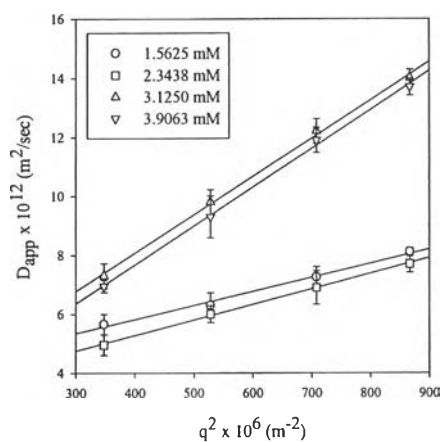
Figure 3.18 (B) D_{app} as a function of q^2 at different HTAC concentrations at 30°C. PEO: M_w = 1 x 10^5 g/mol, c_p = 0.1 g/dL; HTAC concentrations: (O) 1.563 mM; (□) 2.344 mM; (Δ) 3.125 mM; and (∇) 3.906 mM.
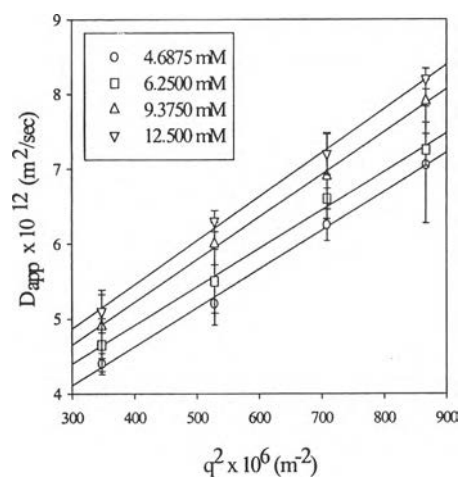
Figure 3.18 (C) D_{app} as a function of q^2 at different HTAC concentrations at 30°C. PEO: M_w = 1 x 10^5 g/mol, c_p = 0.1 g/dL; HTAC concentrations: (O) 4.688 mM; (□) 6.250 mM; (Δ) 9.375 mM; and (∇) 12.50 mM.
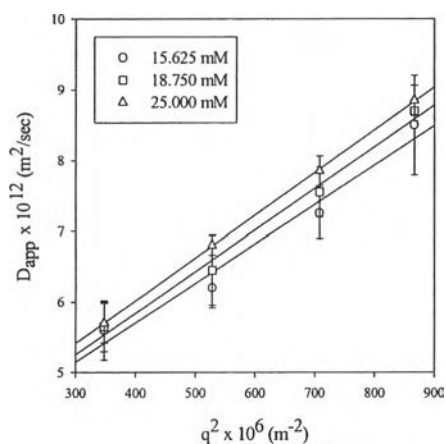
Figure 3.18 (D) D_{app} as a function of q^2 at different HTAC concentrations at $30\degree C$. PEO: M_w = 1 x 10^5 g/mol, c_p = 0.1 g/dL; HTAC concentrations: (O) 15.625 mM; (□) 18.750 mM; and (Δ) 25.00 mM.

(ii) PEO (M_w = 9x10^5 g/mol) 0.1 g/dL - HTAC in water at $30\degree C$

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0	70	18.64	347.45	7.1	7.4
	90	22.98	528.08	8.1	8.2
	110	26.61	708.09	8.6	8.8
	130	29.44	866.71	9.1	9.5
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.0313	70	18.64	347.45	6.4	7.8
	90	22.98	528.08	7.0	8.4
	110	26.61	708.09	7.7	8.7
	130	29.44	866.71	8.7	9.4
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.0780	70	18.64	347.45	6.6	7.2
	90	22.98	528.08	7.0	7.8
	110	26.61	708.09	7.9	8.2
	130	29.44	866.71	8.6	9.0
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.3125	70	18.64	347.45	5.0	5.2
	90	22.98	528.08	5.7	6.0
	110	26.61	708.09	6.1	6.5
	130	29.44	866.71	6.9	7.0

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.7813	70	18.64	347.45	5.7	6.4
	90	22.98	528.08	7.3	7.2
	110	26.61	708.09	8.2	8.2
	130	29.44	866.71	9.2	9.0
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
1.5625	70	18.64	347.45	5.1	5.0
	90	22.98	528.08	5.8	6.0
	110	26.61	708.09	6.4	6.6
	130	29.44	866.71	6.8	7.1
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
2.3438	70	18.64	347.45	5.2	4.8
	90	22.98	528.08	6.3	6.0
	110	26.61	708.09	7.4	7.0
	130	29.44	866.71	8.0	8.2
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
3.1250	70	18.64	347.45	4.1	4.8
	90	22.98	528.08	5.2	5.0
	110	26.61	708.09	5.8	6.1
	130	29.44	866.71	6.3	6.6
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
3.9063	70	18.64	347.45	4.0	5.0
	90	22.98	528.08	5.5	6.6
	110	26.61	708.09	6.8	7.8
	130	29.44	866.71	7.4	8.5
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
4.6875	70	18.64	347.45	4.8	5.2
	90	22.98	528.08	5.7	6.2
	110	26.61	708.09	7.5	7.2
	130	29.44	866.71	8.0	8.6
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
6.2500	70	18.64	347.45	5.0	5.2
	90	22.98	528.08	6.5	6.0
	110	26.61	708.09	7.5	7.7
	130	29.44	866.71	8.2	8.6
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
9.3750	70	18.64	347.45	5.2	5.5
	90	22.98	528.08	6.6	6.3
	110	26.61	708.09	7.6	7.8
	130	29.44	866.71	8.6	8.9
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
12.500	70	18.64	347.45	4.6	4.9
	90	22.98	528.08	5.4	5.8
	110	26.61	708.09	6.4	6.9
	130	29.44	866.71	6.9	7.5

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
15.625	70	18.64	347.45	4.9	5.1
	90	22.98	528.08	5.6	6.1
	110	26.61	708.09	6.4	6.9
	130	29.44	866.71	7.1	7.6
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
18.750	70	18.64	347.45	5.1	5.5
	90	22.98	528.08	5.6	6.4
	110	26.61	708.09	6.8	7.5
	130	29.44	866.71	7.4	8.1
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
25.000	70	18.64	347.45	5.2	5.5
	90	22.98	528.08	6.5	6.2
	110	26.61	708.09	7.2	7.4
	130	29.44	866.71	7.5	8.4
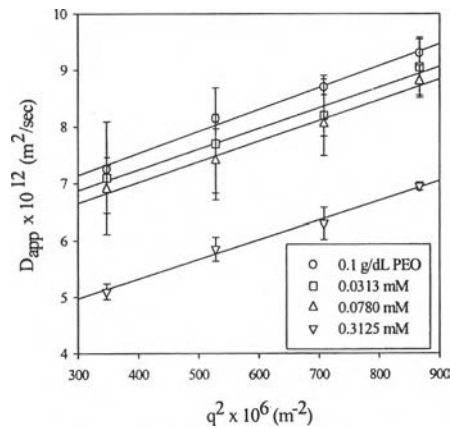
Figure 3.19 (A) D_{app} as a function of q^2 at different HTAC concentrations at 30°C. PEO: M_w = 9 x 10^5 g/mol, c_p = 0.1 g/dL (O); HTAC concentrations: (□) 0.031 mM; (Δ) 0.078 mM; and (∇) 0.313 mM.
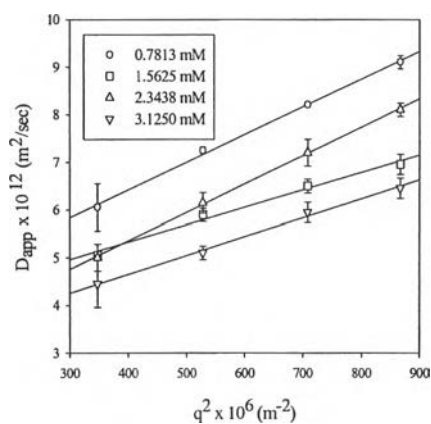
Figure 3.19 (B) D_{app} as a function of q^2 at different HTAC concentrations at 30°C. PEO: M_w = 9 x 10^5 g/mol, c_p = 0.1 g/dL; HTAC concentrations: (O) 0.781 mM; (□) 1.563 mM; (Δ) 2.344 mM; and (∇) 3.125 mM.
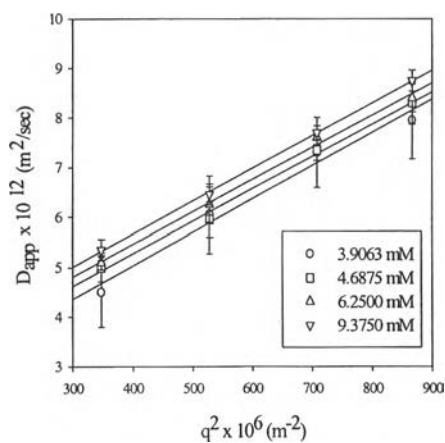
Figure 3.19 (C) D_{app} as a function of q^2 at different HTAC concentrations at 30°C. PEO: M_w = 9 x 10^5 g/mol, c_p = 0.1 g/dL; HTAC concentrations: (O) 3.906 mM; (□) 4.688 mM; (Δ) 6.250 mM; and (∇) 9.375 mM.
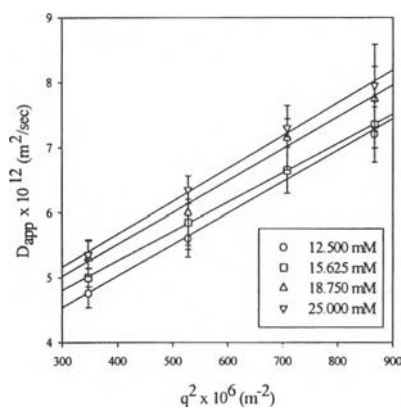
Figure 3.19 (D) D_{app} as a function of q^2 at different HTAC concentrations at 30°C. PEO: M_w = 9 x 10^5 g/mol, c_p = 0.1 g/dL; HTAC concentrations: (O) 12.50 mM; (□) 15.63 mM; (Δ) 18.75 mM; and (∇) 25.00 mM.

3.4.3 Data from static light scattering measurement

(i) PEO (M_w = 1x10^5 g/mol) + HTAC at c_s/c_p = 1.75

(0.06 g/dL PEO + 0.105 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	Kc/R_θ x 10^6
30	0.5236	0.0670	4.038
40	0.6981	0.1170	4.555
50	0.8727	0.1786	4.865
60	1.0472	0.2500	5.219
70	1.2217	0.3290	5.794
80	1.3963	0.4132	6.196
90	1.5708	0.5000	6.384
100	1.7453	0.5868	6.837
110	1.9199	0.6710	7.039
120	2.0944	0.7500	7.217

(0.1 g/dL PEO + 0.175 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	Kc/R_θ x 10^6
30	0.5236	0.0670	4.504
40	0.6981	0.1170	4.779
50	0.8727	0.1786	4.987
60	1.0472	0.2500	5.395
70	1.2217	0.3290	5.921
80	1.3963	0.4132	6.237
90	1.5708	0.5000	6.732
100	1.7453	0.5868	6.999
110	1.9199	0.6710	7.430
120	2.0944	0.7500	7.592

(0.14 g/dL PEO + 0.245 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	4.800
40	0.6981	0.1170	5.086
50	0.8727	0.1786	5.379
60	1.0472	0.2500	5.788
70	1.2217	0.3290	6.152
80	1.3963	0.4132	6.613
90	1.5708	0.5000	7.027
100	1.7453	0.5868	7.444
110	1.9199	0.6710	7.910
120	2.0944	0.7500	8.150

(0.2 g/dL PEO + 0.35 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	4.827
40	0.6981	0.1170	5.359
50	0.8727	0.1786	5.734
60	1.0472	0.2500	6.221
70	1.2217	0.3290	6.765
80	1.3963	0.4132	7.216
90	1.5708	0.5000	7.625
100	1.7453	0.5868	8.294
110	1.9199	0.6710	8.834
120	2.0944	0.7500	9.261
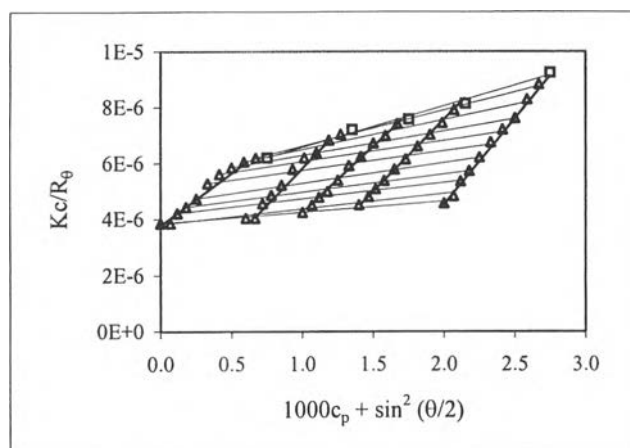
Figure 3.20 Zimm plot for PEO (1×10^5 M_w) at $c_s/c_p = 1.75$

(ii) PEO (M_w = 9x10^5 g/mol) + HTAC at c_s/c_p = 1.75
(0.05 g/dL PEO + 0.875 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	Kc/R_θ x 10^6
30	0.5236	0.0670	1.302
40	0.6981	0.1170	1.445
50	0.8727	0.1786	1.717
60	1.0472	0.2500	1.989
70	1.2217	0.3290	2.284
80	1.3963	0.4132	2.564
90	1.5708	0.5000	2.869
100	1.7453	0.5868	3.192
110	1.9199	0.6710	3.379
120	2.0944	0.7500	3.572

(0.08 g/dL PEO + 0.14 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	Kc/R_θ x 10^6
30	0.5236	0.0670	1.636
40	0.6981	0.1170	1.916
50	0.8727	0.1786	2.090
60	1.0472	0.2500	2.342
70	1.2217	0.3290	2.640
80	1.3963	0.4132	2.913
90	1.5708	0.5000	3.191
100	1.7453	0.5868	3.333
110	1.9199	0.6710	3.655
120	2.0944	0.7500	3.847

(0.12 g/dL PEO + 0.21 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	Kc/R_θ x 10^6
30	0.5236	0.0670	2.110
40	0.6981	0.1170	2.369
50	0.8727	0.1786	2.659
60	1.0472	0.2500	3.084
70	1.2217	0.3290	3.401
80	1.3963	0.4132	3.821
90	1.5708	0.5000	4.186
100	1.7453	0.5868	4.426
110	1.9199	0.6710	4.672
120	2.0944	0.7500	4.672

(0.16 g/dL PEO + 0.28 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	2.499
40	0.6981	0.1170	2.868
50	0.8727	0.1786	3.271
60	1.0472	0.2500	3.608
70	1.2217	0.3290	4.110
80	1.3963	0.4132	4.379
90	1.5708	0.5000	4.646
100	1.7453	0.5868	4.880
110	1.9199	0.6710	5.023
120	2.0944	0.7500	5.096
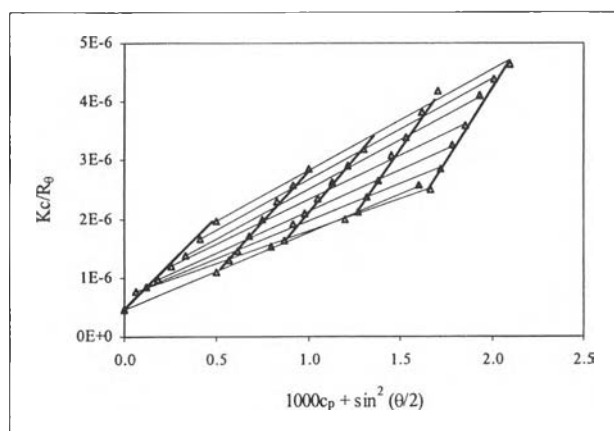
Figure 3.21 Zimm plot for PEO (9×10^5 M_w) at $c_s/c_p = 1.75$.

3.5 Effect of salt

3.5.1 Data from conductivity measurement

(i) PEO ($M_w = 6 \times 10^5$ g/mol) 0.1 g/dL - HTAC at $30\degree$C in 0.1 M KNO_3 solution

c_s (mM)	Conductance (μS/cm)	Conductance (μS/cm)	Std. deviation
0	15600	15700	± 70.1
0.0625	17800	18800	± 7.07
0.1250	18800	19600	± 5.66
0.1563	20700	21000	± 2.12
0.1875	24200	25400	± 8.49
0.2500	25200	27800	± 18.4
0.3125	28000	29000	± 7.07
0.3750	30000	30600	± 4.24
0.5000	31000	31200	± 1.41
0.7813	31400	31600	± 1.41
0.9375	31600	32600	± 7.07
1.2500	31700	32800	± 7.78
1.5625	32000	33200	± 8.49
1.7500	33400	33600	± 1.41

Figure is shown in Section 4.3.5.1.

3.5.2 Data from viscosity measurement

(i) PEO ($M_w = 6 \times 10^5$ g/mol) 0.1 g/dL - HTAC at $30\degree$C in 0.1 M KNO_3 solution

c_s (mM)	η_{sp}	η_{sp}	Std. deviation
0	0.4422	0.4422	± 0.000
0.1	0.4000	0.3907	± 0.006
0.5	0.4474	0.4470	± 0.001
1.0	0.4731	0.4761	± 0.002
1.25	0.5057	0.5150	± 0.007
1.5	0.5177	0.5400	± 0.016
1.75	0.5403	0.5758	± 0.025
2.0	0.5130	0.5110	± 0.001
2.5	0.5125	0.5100	± 0.002
3.0	0.5256	0.5200	± 0.004
4.0	0.5400	0.5400	± 0.000
5.0	0.5500	0.5300	± 0.014

Figure is shown in Section 4.3.5.2.

3.5.3 Data from static light scattering measurement

PEO (6×10^5 M$_w$)-HTAC at $c_s/c_p = 1.75$ in 0.1 M KNO$_3$ solution

0.02 g/dL PEO + 0.035 g/dL HTAC in 0.1 M KNO$_3$ solution

Angle (degree)	Angle (radian)	Sin$^2(\theta/2)$	Kc/R$_\theta$ x 10^6
30	0.5236	0.0670	1.456
40	0.6981	0.1170	1.501
50	0.8727	0.1786	1.519
60	1.0472	0.2500	1.563
70	1.2217	0.3290	1.591
80	1.3963	0.4132	1.623
90	1.5708	0.5000	1.661
100	1.7453	0.5868	1.689
110	1.9199	0.6710	1.704
120	2.0944	0.7500	1.723

0.04 g/dL PEO + 0.07 g/dL HTAC in 0.1 M KNO$_3$ solution

Angle (degree)	Angle (radian)	Sin$^2(\theta/2)$	Kc/R$_\theta$ x 10^6
30	0.5236	0.0670	1.467
40	0.6981	0.1170	1.510
50	0.8727	0.1786	1.521
60	1.0472	0.2500	1.547
70	1.2217	0.3290	1.580
80	1.3963	0.4132	1.597
90	1.5708	0.5000	1.623
100	1.7453	0.5868	1.648
110	1.9199	0.6710	1.679
120	2.0944	0.7500	1.688

0.07 g/dL PEO + 0.1225 g/dL HTAC in 0.1 M KNO$_3$ solution

Angle (degree)	Angle (radian)	Sin$^2(\theta/2)$	Kc/R$_\theta$ x 10^6
30	0.5236	0.0670	1.476
40	0.6981	0.1170	1.488
50	0.8727	0.1786	1.509
60	1.0472	0.2500	1.536
70	1.2217	0.3290	1.564
80	1.3963	0.4132	1.592
90	1.5708	0.5000	1.596
100	1.7453	0.5868	1.629
110	1.9199	0.6710	1.641
120	2.0944	0.7500	1.685

0.1 g/dL PEO + 0.175 g/dL HTAC in 0.1 M KNO_3 solution

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
30	0.5236	0.0670	1.488
40	0.6981	0.1170	1.497
50	0.8727	0.1786	1.517
60	1.0472	0.2500	1.544
70	1.2217	0.3290	1.559
80	1.3963	0.4132	1.581
90	1.5708	0.5000	1.604
100	1.7453	0.5868	1.624
110	1.9199	0.6710	1.650
120	2.0944	0.7500	1.668

Figure is shown in Section 4.3.6.2.

3.5.4 Data from refractive index increment measurement

(i) PEO ($M_w = 6 \times 10^5$ g/mol) + HTAC at $c_s/c_p = 1.75$ in 0.1 M KNO_3 solution

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{\mu s}$ (mL/g)
	0.08	200	212	
	0.10	248	252	
1.75	0.12	320	326	0.271 ± 0.002
	0.14	384	388	
	0.16	442	450	

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{cs}$ (mL/g)
	0.050	46	50	
	0.055	50	54	
1.75	0.060	55	63	0.1012 ± 0.004
	0.065	65	71	
	0.070	71	79	

c_s/c_p	c_s (g/100 mL)	Δn	Δn	$(dn/dc_s)_{cp}$ (mL/g)
	0.080	82.4	84.2	
	0.085	87.8	89.4	
1.75	0.090	92.6	94.0	0.1035 ± 0.001
	0.095	97.1	98.7	
	0.100	101	105	
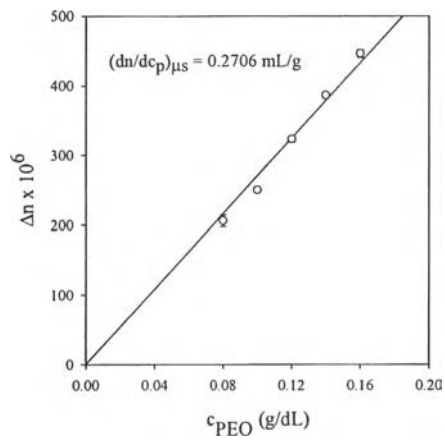
Figure 3.22 (A) dn/dc value for PEO(2)-HTAC in 0.1 M KNO$_3$ solution at c_s/c_p = 1.75 (fixed HTAC concentration and varied PEO concentration after dialysis).
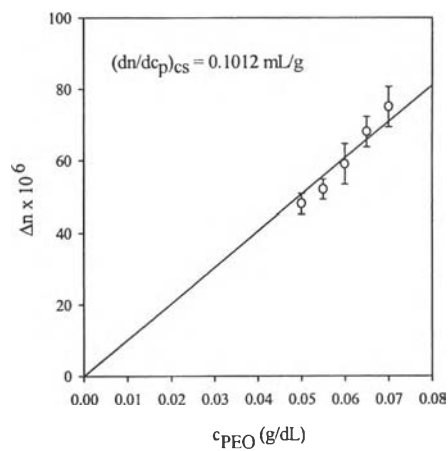
Figure 3.22 (B) dn/dc value for PEO(2)-HTAC in 0.1 M KNO$_3$ solution at c_s/c_p = 1.75 (fixed HTAC concentration and varied PEO concentration without dialysis).
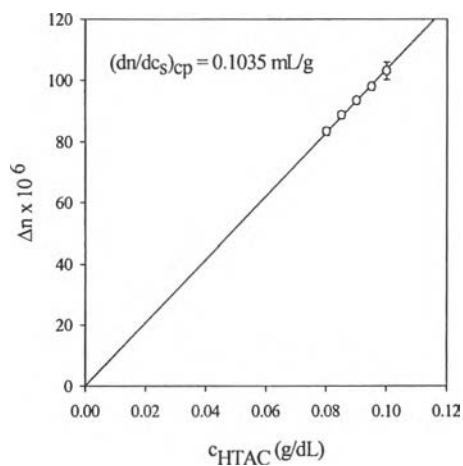
Figure 3.22 (C) dn/dc value for PEO(2)-HTAC in 0.1 M KNO$_3$ solution at c_s/c_p = 1.75 (fixed PEO concentration and varied HTAC concentration without dialysis).

Appendix - 4

Viscoelastic Properties of PEO

<u>4.1 Effect of polymer concentration</u>

(i) PEO ($M_w = 6 \times 10^5$ g/mol) 4 g/dL in water at 30°C (Strain = 10%)

c_p (g/dL)	ω (rad/sec)	G' (dyne/cm^2)	G' (dyne/cm^2)	η (Poise)
	0.0100	-	0.200	20.22
	0.0159	0.1400	0.200	15.46
	0.0251	0.1200	0.170	8.250
	0.0398	0.1700	0.280	8.380
	0.0631	0.1700	0.510	8.440
	0.1000	0.2200	0.650	5.830
	0.1585	0.1800	0.910	5.840
	0.2512	-	1.530	6.070
	0.3981	0.1300	2.320	5.850
	0.6310	0.3000	3.580	5.690
4.0	1.0000	0.2900	5.620	5.620
	1.5850	0.5100	8.880	5.610
	2.5120	0.9900	13.87	5.540
	3.9810	1.9100	21.80	5.500
	6.3100	3.9500	33.95	5.420
	10.000	7.9900	52.07	5.270
	15.850	16.030	78.39	5.050
	25.120	30.340	115.9	4.770
	39.820	54.720	167.7	4.430
	63.100	94.340	237.3	4.05
	100.00	157.30	327.2	3.630

(ii) PEO ($M_w = 6 \times 10^5$ g/mol) 8 g/dL in water at 30°C (Strain = 10%)

c_p (g/dL)	ω (rad/sec)	G' (dyne/cm^2)	G' (dyne/cm^2)	η^* (Poise)
	0.0100	0.5174	1.6860	176.4
	0.0159	0.6471	2.610	169.6
	0.0251	0.5590	4.048	162.7
	0.0398	0.7980	6.398	162.0
	0.0631	0.6389	9.994	158.7
	0.1000	1.016	15.90	159.8
	0.1585	2.006	24.59	155.6
	0.2512	3.904	38.61	154.5
	0.3981	7.267	60.08	152.0
	0.6310	14.51	91.75	147.2
8.0	1.0000	27.71	138.6	141.3
	1.5850	50.71	204.6	133.0
	2.5120	91.71	297.6	124.0
	3.9810	157.7	423.0	113.4
	6.3100	260.0	585.2	101.5
	10.000	413.4	792.6	89.40
	15.850	631.6	1045	77.06
	25.120	934.7	1348	65.30
	39.820	1346	1696	54.37
	63.100	1890	2080	44.53
	100.00	2583	2478	35.79

4.2 Effect of salt

(i) PEO ($M_w = 6 \times 10^5$ g/mol) 4 g/dL in 0.1 M KNO_3 solution at 30°C (Strain = 10%)

c_p (g/dL)	ω (rad/sec)	G' (dyne/cm^2)	G' (dyne/cm^2)	$\eta^\bullet$ (Poise)
	0.10	0.00	0.49	4.91
	0.13	0.04	0.45	3.61
	0.16	0.07	0.70	4.47
	0.20	-	0.75	3.77
	0.25	0.05	1.04	4.14
	0.32	0.05	1.16	3.68
	0.40	0.00	1.67	4.21
	0.50	0.06	2.04	4.07
	0.63	-	2.47	3.92
	0.79	0.08	3.12	3.93
	1.00	0.08	3.89	3.89
	1.26	0.09	4.89	3.89
	1.59	0.14	6.18	3.90
	2.00	0.31	7.78	3.90
	2.51	0.40	9.7700	3.89
4.0	3.16	0.67	12.34	3.91
	3.98	0.85	15.27	3.84
	5.01	1.43	19.24	3.85
	6.31	2.17	24.07	3.83
	7.94	3.15	29.92	3.79
	10.00	4.48	37.07	3.74
	12.59	6.66	46.06	3.70
	15.85	9.49	56.78	3.63
	19.95	13.59	69.80	3.56
	25.11	18.77	85.06	3.47
	31.62	25.96	103.5	3.37
	39.80	35.18	125.0	3.26
	50.10	47.30	150.4	3.15
	63.08	62.71	179.5	3.02
	79.41	82.59	213.7	2.89
	99.97	105.1	249.1	2.71

4.3 Effect of temperature

4.3.1 PEO ($M_w = 6x10^5$ g/mol) 4 g/dL in water

(i) PEO ($M_w = 6x10^5$ g/mol) 4 g/dL in water at 10°C (Strain = 10%)

ω (rad/sec)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (Poise)
0.01	0.13	0.07	14.98
0.0159	0.11	0.11	10.19
0.0251	0.14	0.32	14.01
0.0398	0.07	0.39	9.96
0.0631	0.00	0.83	13.09
0.1	0.10	1.19	11.91
0.1585	0.20	1.83	11.62
0.2512	0.10	2.92	11.64
0.3981	0.17	4.42	11.12
0.6310	0.34	7.04	11.18
1	0.64	11.20	11.22
1.585	1.41	17.31	10.96
2.512	3.01	27.09	10.85
3.981	6.16	41.66	10.58
6.31	12.35	63.01	10.18
10	23.36	93.37	9.622
15.85	42.51	135.6	8.964
25.12	73.38	191.8	8.176
39.82	121.2	265.5	7.329
63.10	192.3	358.9	6.452
100	296.9	474.5	5.597

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.13	600,000	0.04	283	78060	941144800	8.294E-05
0.11	600,000	0.04	283	68580	941144800	7.287E-05
0.14	600,000	0.04	283	82440	941144800	8.760E-05
0.07	600,000	0.04	283	41838	941144800	4.445E-05
0.00	600,000	0.04	283	0	941144800	0.000E+00
0.10	600,000	0.04	283	60240	941144800	6.401E-05
0.20	600,000	0.04	283	119340	941144800	1.268E-04
0.10	600,000	0.04	283	60900	941144800	6.471E-05
0.17	600,000	0.04	283	103860	941144800	1.104E-04
0.34	600,000	0.04	283	201060	941144800	2.136E-04
0.64	600,000	0.04	283	381000	941144800	4.048E-04
1.41	600,000	0.04	283	843000	941144800	8.957E-04
3.01	600,000	0.04	283	1806000	941144800	1.919E-03
6.16	600,000	0.04	283	3697200	941144800	3.928E-03
12.35	600,000	0.04	283	7410000	941144800	7.873E-03
23.26	600,000	0.04	283	13956000	941144800	1.483E-02
42.51	600,000	0.04	283	25506000	941144800	2.710E-02
73.38	600,000	0.04	283	44028000	941144800	4.678E-02
121.2	600,000	0.04	283	72720000	941144800	7.727E-02
192.3	600,000	0.04	283	115380000	941144800	1.226E-01
296.9	600,000	0.04	283	178140000	941144800	1.893E-01

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	C (g/mL)	T (K)	(G" - ωη_s)M	cRT	(G" - ωη_s)M/cRT
0.07	0.01	0.0115	600,000	0.04	283	44511	941144800	0.00005
0.11	0.0159	0.0115	600,000	0.04	283	68351	941144800	0.00007
0.32	0.0251	0.0115	600,000	0.04	283	194167	941144800	0.00021
0.39	0.0398	0.0115	600,000	0.04	283	234025	941144800	0.00025
0.83	0.0631	0.0115	600,000	0.04	283	495165	941144800	0.00053
1.19	0.1	0.0115	600,000	0.04	283	711510	941144800	0.00076
1.83	0.1585	0.0115	600,000	0.04	283	1097506	941144800	0.00117
2.92	0.2512	0.0115	600,000	0.04	283	1752067	941144800	0.00186
4.42	0.3981	0.0115	600,000	0.04	283	2650453	941144800	0.00282
7.04	0.6310	0.0115	600,000	0.04	283	4222046	941144800	0.00449
11.20	1	0.0115	600,000	0.04	283	6713100	941144800	0.00713
17.31	1.5850	0.0115	600,000	0.04	283	10375064	941144800	0.01102
27.09	2.5120	0.0115	600,000	0.04	283	16236667	941144800	0.01725
41.66	3.9810	0.0115	600,000	0.04	283	24968531	941144800	0.02653
63.01	6.3100	0.0115	600,000	0.04	283	37762461	941144800	0.04012
93.37	10	0.0115	600,000	0.04	283	55953000	941144800	0.05945
135.6	15.850	0.0115	600,000	0.04	283	81250635	941144800	0.08633
191.8	25.120	0.0115	600,000	0.04	283	114906672	941144800	0.12209
265.5	39.820	0.0115	600,000	0.04	283	159025242	941144800	0.16897
358.9	63.100	0.0115	600,000	0.04	283	214904610	941144800	0.22834
474.5	100	0.0115	600,000	0.04	283	284010000	941144800	0.30177

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η_0 - η_s)M	cRT	ω(η_0-η_s)M/cRT
0.01	0.0115	9.459	600,000	56685	941144800	6.023E-05
0.0159	0.0115	9.459	600,000	89846	941144800	9.546E-05
0.0251	0.0115	9.459	600,000	142393	941144800	1.513E-04
0.0398	0.0115	9.459	600,000	225663	941144800	2.398E-04
0.0631	0.0115	9.459	600,000	357682	941144800	3.801E-04
0.1	0.0115	9.459	600,000	566850	941144800	6.023E-04
0.1585	0.0115	9.459	600,000	898457	941144800	9.546E-04
0.2512	0.0115	9.459	600,000	1423927	941144800	1.513E-03
0.3981	0.0115	9.459	600,000	2256630	941144800	2.398E-03
0.6310	0.0115	9.459	600,000	3576824	941144800	3.801E-03
1	0.0115	9.459	600,000	5668500	941144800	6.023E-03
1.5850	0.0115	9.459	600,000	8984573	941144800	9.546E-03
2.5120	0.0115	9.459	600,000	14239272	941144800	1.513E-02
3.9810	0.0115	9.459	600,000	22566299	941144800	2.398E-02
6.3100	0.0115	9.459	600,000	35768235	941144800	3.801E-02
10	0.0115	9.459	600,000	56685000	941144800	6.023E-02
15.850	0.0115	9.459	600,000	89845725	941144800	9.546E-02
25.120	0.0115	9.459	600,000	142392720	941144800	1.513E-01
39.820	0.0115	9.459	600,000	225719670	941144800	2.398E-01
63.100	0.0115	9.459	600,000	357682350	941144800	3.801E-01
100	0.0115	9.459	600,000	566850000	941144800	6.023E-01

(ii) PEO ($M_w = 6 \times 10^5$ g/mol) 4 g/dL in water at 20°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G'' (dyne/cm²)	η* (poise)
0.01	0.17	0.08	18.33
0.01585	0.05	0.27	17.06
0.02512	0.05	0.18	7.36
0.03981	0.13	0.40	10.44
0.0631	0.00	0.60	9.46
0.1	0.11	0.78	7.89
0.1585	0.00	1.34	8.48
0.2512	0.00	1.99	7.90
0.3981	0.10	3.18	7.99
0.631	0.21	5.03	7.98
1	0.36	7.81	7.82
1.585	0.69	12.31	7.78
2.512	1.44	19.13	7.64
3.981	3.37	29.79	7.53
6.31	6.96	45.91	7.36
10	13.73	69.37	7.07
15.85	25.88	102.60	6.68
25.12	47.03	148.70	6.21
39.82	81.38	210.80	5.68
63.1	134.90	291.90	5.10
100	216.10	395.10	4.50

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G'$_R$ = G' M/cRT
0.17	600,000	0.04	293	1.00E+05	974400800	1.030E-04
0.05	600,000	0.04	293	3.18E+04	974400800	3.259E-05
0.05	600,000	0.04	293	3.23E+04	974400800	3.312E-05
0.13	600,000	0.04	293	7.58E+04	974400800	7.777E-05
0.00	600,000	0.04	293	0.00E+00	974400800	0.000E+00
0.11	600,000	0.04	293	6.34E+04	974400800	6.502E-05
0.00	600,000	0.04	293	0.00E+00	974400800	0.000E+00
0.00	600,000	0.04	293	0.00E+00	974400800	0.000E+00
0.10	600,000	0.04	293	5.86E+04	974400800	6.013E-05
0.21	600,000	0.04	293	1.26E+05	974400800	1.297E-04
0.36	600,000	0.04	293	2.16E+05	974400800	2.212E-04
0.69	600,000	0.04	293	4.14E+05	974400800	4.251E-04
1.44	600,000	0.04	293	8.63E+05	974400800	8.861E-04
3.37	600,000	0.04	293	2.02E+06	974400800	2.076E-03
6.96	600,000	0.04	293	4.18E+06	974400800	4.286E-03
13.73	600,000	0.04	293	8.24E+06	974400800	8.454E-03
25.88	600,000	0.04	293	1.55E+07	974400800	1.594E-02
47.03	600,000	0.04	293	2.82E+07	974400800	2.896E-02
81.38	600,000	0.04	293	4.88E+07	974400800	5.011E-02
134.9	600,000	0.04	293	8.09E+07	974400800	8.307E-02
216.1	600,000	0.04	293	1.30E+08	974400800	1.331E-01

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
0.08	0.01	0.01	600,000	0.04	293	45108	974400800	0.000046
0.27	0.01585	0.01	600,000	0.04	293	158965	974400800	0.000163
0.18	0.02512	0.01	600,000	0.04	293	106049	974400800	0.000109
0.40	0.03981	0.01	600,000	0.04	293	237241	974400800	0.000243
0.60	0.0631	0.01	600,000	0.04	293	357761	974400800	0.000367
0.78	0.1	0.01	600,000	0.04	293	468540	974400800	0.000481
1.34	0.1585	0.01	600,000	0.04	293	805449	974400800	0.000827
1.99	0.2512	0.01	600,000	0.04	293	1189493	974400800	0.001221
3.18	0.3981	0.01	600,000	0.04	293	1905611	974400800	0.001956
5.03	0.631	0.01	600,000	0.04	293	3013614	974400800	0.003093
7.81	1	0.01	600,000	0.04	293	4681800	974400800	0.004805
12.31	1.585	0.01	600,000	0.04	293	7376490	974400800	0.007570
19.13	2.512	0.01	600,000	0.04	293	11462928	974400800	0.011764
29.79	3.981	0.01	600,000	0.04	293	17850114	974400800	0.018319
45.91	6.31	0.01	600,000	0.04	293	27508140	974400800	0.028231
69.37	10	0.01	600,000	0.04	293	41562000	974400800	0.042654
102.60	15.85	0.01	600,000	0.04	293	61464900	974400800	0.063080
148.70	25.12	0.01	600,000	0.04	293	89069280	974400800	0.091409
210.80	39.82	0.01	600,000	0.04	293	126241080	974400800	0.129558
291.90	63.1	0.01	600,000	0.04	293	174761400	974400800	0.179353
395.10	100	0.01	600,000	0.04	293	236460000	974400800	0.242672

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η$_0$ - η$_s$)M	cRT	ω(η$_0$-η$_s$)M/cRT
0.01	0.01	7.03	600,000	42120.00	974400800	4.323E-05
0.0159	0.01	7.03	600,000	66760.20	974400800	6.851E-05
0.0251	0.01	7.03	600,000	105805.4	974400800	1.086E-04
0.0398	0.01	7.03	600,000	167679.7	974400800	1.721E-04
0.0631	0.01	7.03	600,000	265777	974400800	2.728E-04
0.1	0.01	7.03	600,000	421200	974400800	4.323E-04
0.1585	0.01	7.03	600,000	667602	974400800	6.851E-04
0.2512	0.01	7.03	600,000	1058054	974400800	1.086E-03
0.3981	0.01	7.03	600,000	1676797	974400800	1.721E-03
0.6310	0.01	7.03	600,000	2657772	974400800	2.728E-03
1	0.01	7.03	600,000	4212000	974400800	4.323E-03
1.585	0.01	7.03	600,000	6676020	974400800	6.851E-03
2.512	0.01	7.03	600,000	10580544	974400800	1.086E-02
3.981	0.01	7.03	600,000	16767972	974400800	1.721E-02
6.310	0.01	7.03	600,000	26577720	974400800	2.728E-02
10	0.01	7.03	600,000	42120000	974400800	4.323E-02
15.85	0.01	7.03	600,000	66760200	974400800	6.851E-02
25.12	0.01	7.03	600,000	105805440	974400800	1.086E-01
39.82	0.01	7.03	600,000	167721840	974400800	1.721E-01
63.1	0.01	7.03	600,000	265777200	974400800	2.728E-01
100	0.01	7.03	600,000	421200000	974400800	4.323E-01

(iii) PEO ($M_w = 6 \times 10^5$ g/mol) 4 g/dL in water at 30°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η^* (poise)
0.01	0.04	0.20	20.22
0.0159	0.14	0.20	15.46
0.0251	0.12	0.17	8.25
0.0398	0.17	0.28	8.38
0.0631	0.17	0.51	8.44
0.1	0.22	0.65	5.83
0.1585	0.18	0.91	5.84
0.2512	0.01	1.53	6.07
0.3981	0.13	2.32	5.85
0.631	0.30	3.58	5.69
1	0.29	5.62	5.62
1.5850	0.51	8.88	5.61
2.5120	0.99	13.87	5.54
3.9810	1.91	21.80	5.50
6.3100	3.95	33.95	5.42
10	7.99	52.07	5.27
15.85	16.03	78.39	5.05
25.12	30.34	115.90	4.77
39.82	54.72	167.70	4.43
63.1	94.34	237.30	4.05
100	157.30	327.20	3.63

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	$G'_R = G'$ M/cRT
0.04	600,000	0.04	303	2.56E+04	1007656800	2.54E-05
0.14	600,000	0.04	303	8.32E+04	1007656800	8.26E-05
0.12	600,000	0.04	303	7.34E+04	1007656800	7.28E-05
0.17	600,000	0.04	303	1.04E+05	1007656800	1.04E-04
0.17	600,000	0.04	303	9.92E+04	1007656800	9.85E-05
0.22	600,000	0.04	303	1.29E+05	1007656800	1.28E-04
0.18	600,000	0.04	303	1.10E+05	1007656800	1.09E-04
0.01	600,000	0.04	303	8.60E+03	1007656800	8.53E-06
0.13	600,000	0.04	303	7.67E+04	1007656800	7.61E-05
0.19	600,000	0.04	303	1.14E+05	1007656800	1.13E-04
0.29	600,000	0.04	303	1.77E+05	1007656800	1.75E-04
0.51	600,000	0.04	303	3.09E+05	1007656800	3.06E-04
0.99	600,000	0.04	303	5.92E+05	1007656800	5.88E-04
1.91	600,000	0.04	303	1.14E+06	1007656800	1.13E-03
3.95	600,000	0.04	303	2.37E+06	1007656800	2.35E-03
7.99	600,000	0.04	303	4.80E+06	1007656800	4.76E-03
16.03	600,000	0.04	303	9.62E+06	1007656800	9.54E-03
30.34	600,000	0.04	303	1.82E+07	1007656800	1.81E-02
54.72	600,000	0.04	303	3.28E+07	1007656800	3.26E-02
94.34	600,000	0.04	303	5.66E+07	1007656800	5.62E-02
157.30	600,000	0.04	303	9.44E+07	1007656800	9.37E-02

G" (dyne/cm^2)	ω (rad/s)	η$_s$ (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
0.20	0.01	0.0082	600,000	0.04	303	118511	1007656800	0.000118
0.20	0.01585	0.0082	600,000	0.04	303	121062	1007656800	0.000120
0.17	0.02512	0.0082	600,000	0.04	303	100196	1007656800	0.000099
0.28	0.03981	0.0082	600,000	0.04	303	170504	1007656800	0.000169
0.51	0.0631	0.0082	600,000	0.04	303	303410	1007656800	0.000301
0.65	0.1	0.0082	600,000	0.04	303	388128	1007656800	0.000385
0.91	0.1585	0.0082	600,000	0.04	303	543120	1007656800	0.000539
1.53	0.2512	0.0082	600,000	0.04	303	914364	1007656800	0.000907
2.32	0.3981	0.0082	600,000	0.04	303	1392441	1007656800	0.001382
3.58	0.631	0.0082	600,000	0.04	303	2142495	1007656800	0.002126
5.62	1	0.0082	600,000	0.04	303	3364080	1007656800	0.003339
8.88	1.585	0.0082	600,000	0.04	303	5318402	1007656800	0.005278
13.87	2.512	0.0082	600,000	0.04	303	8309641	1007656800	0.008246
21.80	3.981	0.0082	600,000	0.04	303	13060413	1007656800	0.012961
33.95	6.31	0.0082	600,000	0.04	303	20338955	1007656800	0.020184
52.07	10	0.0082	600,000	0.04	303	31192800	1007656800	0.030956
78.39	15.85	0.0082	600,000	0.04	303	46956018	1007656800	0.046599
115.90	25.12	0.0082	600,000	0.04	303	69416410	1007656800	0.068889
167.70	39.82	0.0082	600,000	0.04	303	100424086	1007656800	0.099661
237.30	63.1	0.0082	600,000	0.04	303	142069548	1007656800	0.140990
327.20	100	0.0082	600,000	0.04	303	195828000	1007656800	0.194340

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.0082	5.11	600,000	30610.80	1007656800	3.038E-05
0.0159	0.0082	5.11	600,000	48518.12	1007656800	4.815E-05
0.0251	0.0082	5.11	600,000	76894.3	1007656800	7.631E-05
0.0398	0.0082	5.11	600,000	121861.6	1007656800	1.209E-04
0.0631	0.0082	5.11	600,000	193154	1007656800	1.917E-04
0.1	0.0082	5.11	600,000	306108	1007656800	3.038E-04
0.1585	0.0082	5.11	600,000	485181	1007656800	4.815E-04
0.2512	0.0082	5.11	600,000	768943	1007656800	7.631E-04
0.3981	0.0082	5.11	600,000	1218616	1007656800	1.209E-03
0.6310	0.0082	5.11	600,000	1931541	1007656800	1.917E-03
1	0.0082	5.11	600,000	3061080	1007656800	3.038E-03
1.585	0.0082	5.11	600,000	4851812	1007656800	4.815E-03
2.512	0.0082	5.11	600,000	7689433	1007656800	7.631E-03
3.981	0.0082	5.11	600,000	12186159	1007656800	1.209E-02
6.31	0.0082	5.11	600,000	19315415	1007656800	1.917E-02
10	0.0082	5.11	600,000	30610800	1007656800	3.038E-02
15.85	0.0082	5.11	600,000	48518118	1007656800	4.815E-02
25.12	0.0082	5.11	600,000	76894330	1007656800	7.631E-02
39.82	0.0082	5.11	600,000	121892206	1007656800	1.210E-01
63.1	0.0082	5.11	600,000	193154148	1007656800	1.917E-01
100	0.0082	5.11	600,000	306108000	1007656800	3.038E-01

(iv) PEO ($M_w = 6\times10^5$ g/mol) 4 g/dL in water at 40°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.01	0.05	0.09	10.64
0.0159	0.03	0.03	2.76
0.0252	0.17	0.12	8.34
0.0398	0.07	0.28	7.17
0.0631	0.00	0.31	4.87
0.1	0.00	0.43	4.32
0.1585	0.09	0.84	5.05
0.2512	0.10	1.19	4.74
0.3981	0.09	1.90	4.77
0.631	0.08	2.86	4.53
1	0.19	4.58	4.58
1.585	0.18	7.26	4.58
2.512	0.43	11.46	4.56
3.981	1.31	18.09	4.56
6.31	2.78	28.26	4.50
10	5.73	43.77	4.41
15.85	11.55	66.18	4.24
25.12	22.59	99.04	4.04
39.82	41.98	145.10	3.79
63.1	74.31	208.30	3.51
100	127.40	291.70	3.18

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.05	600,000	0.04	313	2.96E+04	1040912800	2.841E-05
0.03	600,000	0.04	313	1.57E+04	1040912800	1.509E-05
0.17	600,000	0.04	313	1.01E+05	1040912800	9.695E-05
0.07	600,000	0.04	313	3.96E+04	1040912800	3.808E-05
0.00	600,000	0.04	313	0.00E+00	1040912800	0.000E+00
0.00	600,000	0.04	313	0.00E+00	1040912800	0.000E+00
0.09	600,000	0.04	313	5.61E+04	1040912800	5.394E-05
0.10	600,000	0.04	313	6.03E+04	1040912800	5.793E-05
0.09	600,000	0.04	313	5.64E+04	1040912800	5.418E-05
0.08	600,000	0.04	313	4.51E+04	1040912800	4.333E-05
0.19	600,000	0.04	313	1.14E+05	1040912800	1.097E-04
0.18	600,000	0.04	313	1.08E+05	1040912800	1.034E-04
0.43	600,000	0.04	313	2.55E+05	1040912800	2.452E-04
1.31	600,000	0.04	313	7.85E+05	1040912800	7.545E-04
2.78	600,000	0.04	313	1.67E+06	1040912800	1.604E-03
5.73	600,000	0.04	313	3.44E+06	1040912800	3.303E-03
11.55	600,000	0.04	313	6.93E+06	1040912800	6.658E-03
22.59	600,000	0.04	313	1.36E+07	1040912800	1.302E-02
41.98	600,000	0.04	313	2.52E+07	1040912800	2.420E-02
74.31	600,000	0.04	313	4.46E+07	1040912800	4.283E-02
127.40	600,000	0.04	313	7.64E+07	1040912800	7.344E-02

G" (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	C (g/mL)	T (K)	(G" - $\omega\eta_s$)M	cRT	(G" - $\omega\eta_s$)M/cRT
0.09	0.01	0.0068	600,000	0.04	313	56527	1040912800	0.000054
0.03	0.01585	0.0068	600,000	0.04	313	20923	1040912800	0.000020
0.12	0.02512	0.0068	600,000	0.04	313	74838	1040912800	0.000072
0.28	0.03981	0.0068	600,000	0.04	313	166578	1040912800	0.000160
0.31	0.0631	0.0068	600,000	0.04	313	184123	1040912800	0.000177
0.43	0.1	0.0068	600,000	0.04	313	258612	1040912800	0.000248
0.84	0.1585	0.0068	600,000	0.04	313	504613	1040912800	0.000485
1.19	0.2512	0.0068	600,000	0.04	313	709975	1040912800	0.000682
1.90	0.3981	0.0068	600,000	0.04	313	1136576	1040912800	0.001092
2.86	0.631	0.0068	600,000	0.04	313	1711626	1040912800	0.001644
4.58	1	0.0068	600,000	0.04	313	2742120	1040912800	0.002634
7.26	1.585	0.0068	600,000	0.04	313	4347133	1040912800	0.004176
11.46	2.512	0.0068	600,000	0.04	313	6865751	1040912800	0.006596
18.09	3.981	0.0068	600,000	0.04	313	10837758	1040912800	0.010412
28.26	6.31	0.0068	600,000	0.04	313	16930255	1040912800	0.016265
43.77	10	0.0068	600,000	0.04	313	26221200	1040912800	0.025191
66.18	15.85	0.0068	600,000	0.04	313	39643332	1040912800	0.038085
99.04	25.12	0.0068	600,000	0.04	313	59321510	1040912800	0.056990
145.10	39.82	0.0068	600,000	0.04	313	86897534	1040912800	0.083482
208.30	63.1	0.0068	600,000	0.04	313	124722552	1040912800	0.119820
291.70	100	0.0068	600,000	0.04	313	174612000	1040912800	0.167749

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.0068	3.99	600,000	23899.20	1040912800	2.296E-05
0.0159	0.0068	3.99	600,000	37999.73	1040912800	3.651E-05
0.0251	0.0068	3.99	600,000	59987.0	1040912800	5.763E-05
0.0398	0.0068	3.99	600,000	95118.8	1040912800	9.138E-05
0.0631	0.0068	3.99	600,000	150804	1040912800	1.449E-04
0.1	0.0068	3.99	600,000	238992	1040912800	2.296E-04
0.1585	0.0068	3.99	600,000	378802	1040912800	3.639E-04
0.2512	0.0068	3.99	600,000	600348	1040912800	5.768E-04
0.3981	0.0068	3.99	600,000	951427	1040912800	9.140E-04
0.631	0.0068	3.99	600,000	1508040	1040912800	1.449E-03
1	0.0068	3.99	600,000	2389920	1040912800	2.296E-03
1.585	0.0068	3.99	600,000	3788023	1040912800	3.639E-03
2.512	0.0068	3.99	600,000	6003479	1040912800	5.768E-03
3.981	0.0068	3.99	600,000	9514272	1040912800	9.140E-03
6.31	0.0068	3.99	600,000	15080395	1040912800	1.449E-02
10	0.0068	3.99	600,000	23899200	1040912800	2.296E-02
15.85	0.0068	3.99	600,000	37880232	1040912800	3.639E-02
25.12	0.0068	3.99	600,000	60034790	1040912800	5.768E-02
39.82	0.0068	3.99	600,000	95166614	1040912800	9.143E-02
63.1	0.0068	3.99	600,000	150803952	1040912800	1.449E-01
100	0.0068	3.99	600,000	238992000	1040912800	2.296E-01

(v) PEO (M_w = 6x10^5 g/mol) 4 g/dL in water at 50°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.10	0.08	0.45	4.62
0.16	0.16	0.67	4.34
0.25	0.02	1.21	4.82
0.40	0.08	1.81	4.55
0.63	0.11	2.92	4.63
1.00	0.14	4.55	4.55
1.59	0.31	7.02	4.44
2.51	0.65	11.21	4.47
3.98	1.23	17.52	4.41
6.31	2.71	27.21	4.33
10.00	5.56	41.97	4.23
15.85	11.26	64.08	4.11
25.12	21.44	95.98	3.92
39.81	39.80	141.10	3.68
63.10	70.46	203.10	3.41
100	117.10	285.10	3.08

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.08	600,000	0.04	323	5.06E+04	1074168800	4.712E-05
0.16	600,000	0.04	323	9.34E+04	1074168800	8.691E-05
0.02	600,000	0.04	323	9.70E+03	1074168800	9.032E-06
0.08	600,000	0.04	323	5.05E+04	1074168800	4.699E-05
0.11	600,000	0.04	323	6.69E+04	1074168800	6.228E-05
0.14	600,000	0.04	323	8.53E+04	1074168800	7.937E-05
0.31	600,000	0.04	323	1.85E+05	1074168800	1.725E-04
0.65	600,000	0.04	323	3.90E+05	1074168800	3.632E-04
1.23	600,000	0.04	323	7.38E+05	1074168800	6.870E-04
2.71	600,000	0.04	323	1.62E+06	1074168800	1.512E-03
5.56	600,000	0.04	323	3.34E+06	1074168800	3.107E-03
11.26	600,000	0.04	323	6.76E+06	1074168800	6.290E-03
21.44	600,000	0.04	323	1.29E+07	1074168800	1.198E-02
39.80	600,000	0.04	323	2.39E+07	1074168800	2.223E-02
70.46	600,000	0.04	323	4.23E+07	1074168800	3.936E-02
117.10	600,000	0.04	323	7.03E+07	1074168800	6.541E-02

G" (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	C (g/mL)	T (K)	(G" - $\omega\eta_s$)M	cRT	(G" - $\omega\eta_s$)M/cRT
0.45	0.01	0.0057	600,000	0.04	323	272606	1074168800	0.000254
0.67	0.0159	0.0057	600,000	0.04	323	401886	1074168800	0.000374
1.21	0.0251	0.0057	600,000	0.04	323	725914	1074168800	0.000676
1.81	0.0398	0.0057	600,000	0.04	323	1084664	1074168800	0.001010
2.92	0.0631	0.0057	600,000	0.04	323	1752984	1074168800	0.001632
4.55	0.1	0.0057	600,000	0.04	323	2728458	1074168800	0.002540
7.02	0.1585	0.0057	600,000	0.04	323	4213258	1074168800	0.003922
11.21	0.2512	0.0057	600,000	0.04	323	6725141	1074168800	0.006261
17.52	0.3981	0.0057	600,000	0.04	323	10510638	1074168800	0.009785
27.21	0.6310	0.0057	600,000	0.04	323	16323842	1074168800	0.015197
41.97	1	0.0057	600,000	0.04	323	25178580	1074168800	0.023440
64.08	1.585	0.0057	600,000	0.04	323	38442579	1074168800	0.035788
95.98	2.512	0.0057	600,000	0.04	323	57579409	1074168800	0.053604
141.10	3.981	0.0057	600,000	0.04	323	84646385	1074168800	0.078802
203.10	6.31	0.0057	600,000	0.04	323	121838420	1074168800	0.113426
285.10	10	0.0057	600,000	0.04	323	171025800	1074168800	0.159217

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)$M	cRT	$\omega(\eta_0-\eta_s)$M/cRT
0.1	0.0068	5.71	600,000	342192	1074168800	3.186E-04
0.1585	0.0068	5.71	600,000	542374	1074168800	5.049E-04
0.2512	0.0068	5.71	600,000	859586	1074168800	8.002E-04
0.3981	0.0068	5.71	600,000	1362266	1074168800	1.268E-03
0.631	0.0068	5.71	600,000	2159232	1074168800	2.010E-03
1	0.0068	5.71	600,000	3421920	1074168800	3.186E-03
1.585	0.0068	5.71	600,000	5423743	1074168800	5.049E-03
2.512	0.0068	5.71	600,000	8595863	1074168800	8.002E-03
3.981	0.0068	5.71	600,000	13622664	1074168800	1.268E-02
6.31	0.0068	5.71	600,000	21592315	1074168800	2.010E-02
10	0.0068	5.71	600,000	34219200	1074168800	3.186E-02
15.85	0.0068	5.71	600,000	54237432	1074168800	5.049E-02
25.12	0.0068	5.71	600,000	85958630	1074168800	8.002E-02
39.82	0.0068	5.71	600,000	136260854	1074168800	1.269E-01
63.1	0.0068	5.71	600,000	215923152	1074168800	2.010E-01
100	0.0068	5.71	600,000	342192000	1074168800	3.186E-01

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	C (g/mL)	T (K)	(G" - ωη_s)M	cRT	(G" - ωη_s)M/cRT
0.45	0.01	0.0057	600,000	0.04	323	272606	1074168800	0.000254
0.67	0.0159	0.0057	600,000	0.04	323	401886	1074168800	0.000374
1.21	0.0251	0.0057	600,000	0.04	323	725914	1074168800	0.000676
1.81	0.0398	0.0057	600,000	0.04	323	1084664	1074168800	0.001010
2.92	0.0631	0.0057	600,000	0.04	323	1752984	1074168800	0.001632
4.55	0.1	0.0057	600,000	0.04	323	2728458	1074168800	0.002540
7.02	0.1585	0.0057	600,000	0.04	323	4213258	1074168800	0.003922
11.21	0.2512	0.0057	600,000	0.04	323	6725141	1074168800	0.006261
17.52	0.3981	0.0057	600,000	0.04	323	10510638	1074168800	0.009785
27.21	0.6310	0.0057	600,000	0.04	323	16323842	1074168800	0.015197
41.97	1	0.0057	600,000	0.04	323	25178580	1074168800	0.023440
64.08	1.585	0.0057	600,000	0.04	323	38442579	1074168800	0.035788
95.98	2.512	0.0057	600,000	0.04	323	57579409	1074168800	0.053604
141.10	3.981	0.0057	600,000	0.04	323	84646385	1074168800	0.078802
203.10	6.31	0.0057	600,000	0.04	323	121838420	1074168800	0.113426
285.10	10	0.0057	600,000	0.04	323	171025800	1074168800	0.159217

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η_0 - η_s)M	cRT	ω(η_0-η_s)M/cRT
0.1	0.0068	5.71	600,000	342192	1074168800	3.186E-04
0.1585	0.0068	5.71	600,000	542374	1074168800	5.049E-04
0.2512	0.0068	5.71	600,000	859586	1074168800	8.002E-04
0.3981	0.0068	5.71	600,000	1362266	1074168800	1.268E-03
0.631	0.0068	5.71	600,000	2159232	1074168800	2.010E-03
1	0.0068	5.71	600,000	3421920	1074168800	3.186E-03
1.585	0.0068	5.71	600,000	5423743	1074168800	5.049E-03
2.512	0.0068	5.71	600,000	8595863	1074168800	8.002E-03
3.981	0.0068	5.71	600,000	13622664	1074168800	1.268E-02
6.31	0.0068	5.71	600,000	21592315	1074168800	2.010E-02
10	0.0068	5.71	600,000	34219200	1074168800	3.186E-02
15.85	0.0068	5.71	600,000	54237432	1074168800	5.049E-02
25.12	0.0068	5.71	600,000	85958630	1074168800	8.002E-02
39.82	0.0068	5.71	600,000	136260854	1074168800	1.269E-01
63.1	0.0068	5.71	600,000	215923152	1074168800	2.010E-01
100	0.0068	5.71	600,000	342192000	1074168800	3.186E-01

4.3.1 PEO ($M_w = 6 \times 10^5$ g/mol) 8 g/dL in water

(i) PEO ($M_w = 6 \times 10^5$ g/mol) 8 g/dL in water at $10°$C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.01	0.4119	2.254	229.1
0.0159	0.3488	3.532	223.9
0.0251	0.5087	5.538	221.4
0.0398	0.8216	8.779	221.5
0.0631	1.096	13.82	219.7
0.1	1.99	21.59	216.8
0.1585	3.476	33.51	212.5
0.2512	7.024	51.47	206.8
0.3981	13.75	78.22	199.5
0.6310	25.52	116.9	189.6
1	46.92	171	177.3
1.585	82.28	245.8	163.5
2.512	139.7	345.6	148.4
3.981	225.2	473.8	131.8
6.31	352.5	634.8	115.1
10	531.2	828.1	98.38
15.85	772.8	1055	82.53
25.12	1093	1315	68.06
39.82	1510	1601	55.27
63.1	2034	1902	44.13
100	2675	2199	34.63

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
7.52E-04	600,000	0.08	283	4.51E+02	1882289600	2.40E-07
1.69E-02	600,000	0.08	283	1.01E+04	1882289600	5.39E-06
0.1764	600,000	0.08	283	1.06E+05	1882289600	5.62E-05
1.926	600,000	0.08	283	1.16E+06	1882289600	6.14E-04
19.91	600,000	0.08	283	1.19E+07	1882289600	6.35E-03
118.7	600,000	0.08	283	7.12E+07	1882289600	3.78E-02
431.2	600,000	0.08	283	2.59E+08	1882289600	1.37E-01
1161	600,000	0.08	283	6.97E+08	1882289600	3.70E-01
2543	600,000	0.08	283	1.53E+09	1882289600	8.11E-01
4645	600,000	0.08	283	2.79E+09	1882289600	1.48E+00

G" (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - $\omega\eta_s$)M	cRT	(G" - $\omega\eta_s$)M/cRT
1.245	0.0063	0.012	600,000	0.08	283	746954.8	1882289600	0.000397
4.04	0.0204	0.012	600,000	0.08	283	2423853	1882289600	0.001288
13.11	0.0628	0.012	600,000	0.08	283	7865548	1882289600	0.004179
42.32	0.2149	0.012	600,000	0.08	283	25390453	1882289600	0.013489
132.4	0.6974	0.012	600,000	0.08	283	79434978	1882289600	0.042201
355.3	2.2638	0.012	600,000	0.08	283	2.13E+08	1882289600	0.113247
794.2	7.3513	0.012	600,000	0.08	283	4.76E+08	1882289600	0.253132
1496	23.857	0.012	600,000	0.08	283	8.97E+08	1882289600	0.476775
2429	77.409	0.012	600,000	0.08	283	1.46E+09	1882289600	0.773974
4029	251.33	0.012	600,000	0.08	283	2.42E+09	1882289600	1.283326

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)$M	cRT	w($\eta_0-\eta_s$)M/cRT
0.0063	0.012	198.1	600,000	746774	1882289600	0.000396737
0.0204	0.012	198.1	600,000	2424029	1882289600	0.001287809
0.0628	0.012	198.1	600,000	7467742	1882289600	0.003967371
0.2149	0.012	198.1	600,000	25539677	1882289600	0.01356841
0.6974	0.012	198.1	600,000	82891933	1882289600	0.044037821
2.2638	0.012	198.1	600,000	269062732	1882289600	0.142944387
7.3513	0.012	198.1	600,000	873725775	1882289600	0.464182438
23.8573	0.012	198.1	600,000	2835501511	1882289600	1.506410868
77.4088	0.012	198.1	600,000	9200257733	1882289600	4.887801395
251.3274	0.012	198.1	600,000	29870966667	1882289600	15.86948505

(ii) PEO ($M_w = 6\times10^5$ g/mol) 8 g/dL in water at 20°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η^* (poise)
0.01	0.3765	1.839	187.7
0.0159	0.398	2.828	180.2
0.0251	0.5268	4.327	173.5
0.0398	0.5829	6.82	171.9
0.0631	0.8257	10.69	169.9
0.1	1.327	16.74	167.9
0.1585	2.360	26.15	165.6
0.2512	4.689	40.45	162.1
0.3981	8.846	62.11	157.6
0.6310	17.54	93.68	151.0
1	32.14	140.3	143.9
1.585	58.81	204.3	134.1
2.512	102.5	292.3	123.3
3.981	171.4	407.7	111.1
6.31	274.5	554.9	98.11
10	427.5	739.3	85.40
15.85	636.8	959.4	72.65
25.12	921.9	1217	60.79
39.82	1300	1506	49.95
63.1	1785	1818	40.38
100	2393	2138	32.09

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
3.06E-04	600,000	0.08	293	1.84E+02	1948801600	9.42E-08
7.55E-03	600,000	0.08	293	4.53E+03	1948801600	2.32E-06
0.08744	600,000	0.08	293	5.25E+04	1948801600	2.69E-05
0.9499	600,000	0.08	293	5.70E+05	1948801600	2.92E-04
10.47	600,000	0.08	293	6.28E+06	1948801600	3.22E-03
75.62	600,000	0.08	293	4.54E+07	1948801600	2.33E-02
308.9	600,000	0.08	293	1.85E+08	1948801600	9.51E-02
912.4	600,000	0.08	293	5.47E+08	1948801600	2.81E-01
2102	600,000	0.08	293	1.26E+09	1948801600	6.47E-01
4257	600,000	0.08	293	2.55E+09	1948801600	1.31E+00

G" (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - $\omega\eta_s$)M	cRT	(G" - $\omega\eta_s$)M/cRT
0.8902	0.0063	0.01	600,000	0.08	293	534082.3	1948801600	0.000274
2.899	0.0204	0.01	600,000	0.08	293	1739278	1948801600	0.000892
9.427	0.0628	0.01	600,000	0.08	293	5655823	1948801600	0.002902
30.5	0.2149	0.01	600,000	0.08	293	18298711	1948801600	0.009390
97.53	0.6974	0.01	600,000	0.08	293	58513815	1948801600	0.030026
276.7	2.2638	0.01	600,000	0.08	293	1.66E+08	1948801600	0.085184
650.2	7.3513	0.01	600,000	0.08	293	3.9E+08	1948801600	0.200162
1307	23.857	0.01	600,000	0.08	293	7.84E+08	1948801600	0.402328
2184	77.409	0.01	600,000	0.08	293	1.31E+09	1948801600	0.672175
3574	251.33	0.01	600,000	0.08	293	2.14E+09	1948801600	1.099595

ω (rad/sec)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)$M	cRT	$\omega(\eta_0-\eta_s)$M/cRT
0.0063	0.01	142	600,000	535290	1948801600	0.00027
0.0204	0.01	142	600,000	1737550	1948801600	0.00089
0.0628	0.01	142	600,000	5352897	1948801600	0.00274
0.2149	0.01	142	600,000	18306907	1948801600	0.00939
0.6974	0.01	142	600,000	59417155	1948801600	0.03048
2.2638	0.01	142	600,000	192864875	1948801600	0.09896
7.3513	0.01	142	600,000	626288936	1948801600	0.32137
23.8573	0.01	142	600,000	2032494949	1948801600	1.04294
77.4088	0.01	142	600,000	6594768969	1948801600	3.38401
251.3274	0.01	142	600,000	21411587562	1948801600	10.9870

(iii) PEO ($M_w = 6 \times 10^5$ g/mol) 8 g/dL in water at $30\degree$C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η^* (poise)
0.01	0.5174	1.686	176.4
0.0159	0.6471	2.61	169.6
0.0251	0.559	4.048	162.7
0.0398	0.798	6.398	162.0
0.0631	0.6389	9.994	158.7
0.1	1.016	15.94	159.8
0.1585	2.006	24.59	155.6
0.2512	3.904	38.61	154.5
0.3981	7.267	60.08	152.0
0.6310	14.51	91.75	147.2
1	27.71	138.6	141.3
1.585	50.71	204.6	133.0
2.512	91.71	297.6	124.0
3.981	157.7	423	113.4
6.310	260	585.2	101.5
10	413.4	792.6	89.40
15.85	631.6	1045	77.06
25.12	934.7	1348	65.30
39.82	1346	1696	54.37
63.1	1890	2080	44.53
100	2583	2478	35.79

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
1.50E-04	600,000	0.08	303	9.01E+01	2015313600	4.47E-08
2.78E-03	600,000	0.08	303	1.67E+03	2015313600	8.28E-07
0.04596	600,000	0.08	303	2.76E+04	2015313600	1.37E-05
0.5221	600,000	0.08	303	3.13E+05	2015313600	1.55E-04
5.885	600,000	0.08	303	3.53E+06	2015313600	1.75E-03
49.56	600,000	0.08	303	2.97E+07	2015313600	1.48E-02
229.5	600,000	0.08	303	1.38E+08	2015313600	6.83E-02
731.1	600,000	0.08	303	4.39E+08	2015313600	2.18E-01
1815	600,000	0.08	303	1.09E+09	2015313600	5.40E-01
3235	600,000	0.08	303	1.94E+09	2015313600	9.63E-01

G" (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη_s)M	cRT	(G" - ωη_s)M/cRT
0.675	0.0063	0.08	600,000	0.08	303	404458	2015313600	0.00020
2.203	0.0204	0.08	600,000	0.08	303	1320821	2015313600	0.00066
7.145	0.0628	0.08	600,000	0.08	303	4283984	2015313600	0.00213
23.12	0.2149	0.08	600,000	0.08	303	13861686	2015313600	0.00688
74.62	0.6974	0.08	600,000	0.08	303	44738523	2015313600	0.02220
220.9	2.2638	0.08	600,000	0.08	303	1.32E+08	2015313600	0.06571
547.9	7.3513	0.08	600,000	0.08	303	3.28E+08	2015313600	0.16295
1152	23.857	0.08	600,000	0.08	303	6.9E+08	2015313600	0.34241
2088	77.409	0.08	600,000	0.08	303	1.25E+09	2015313600	0.61980
3671	251.33	0.08	600,000	0.08	303	2.19E+09	2015313600	1.08695

ω (rad/sec)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η_0 - η_s)M	cRT	ω(η_0-η_s)M/cRT
0.0063	0.08	107.4	600,000	404587	2015313600	0.00020
0.0204	0.08	107.4	600,000	1313289	2015313600	0.00065
0.0628	0.08	107.4	600,000	4045869	2015313600	0.00201
0.2149	0.08	107.4	600,000	13836871	2015313600	0.00687
0.6974	0.08	107.4	600,000	44909142	2015313600	0.02228
2.2638	0.08	107.4	600,000	145772649	2015313600	0.07233
7.3513	0.08	107.4	600,000	473366636	2015313600	0.23488
23.8573	0.08	107.4	600,000	1536216339	2015313600	0.76227
77.4088	0.08	107.4	600,000	4984510217	2015313600	2.47332
251.3274	0.08	107.4	600,000	16183474732	2015313600	8.03025

(iv) PEO ($M_w = 6\times10^5$ g/mol) 8 g/dL in water at 40°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.01	0.6099	1.544	166.0
0.0159	0.5787	2.271	147.9
0.0251	0.6403	3.483	141.0
0.0398	0.7249	5.542	140.4
0.0631	0.8859	8.661	138.0
0.1	1.362	13.58	136.4
0.1585	2.034	21.38	135.5
0.2512	3.359	33.25	133.0
0.3981	6.191	51.83	131.1
0.6310	11.64	79.44	127.2
1	22.43	120.5	122.6
1.585	41.72	179.6	116.3
2.512	74.21	262.7	108.7
3.981	130	377.4	100.3
6.310	216.2	527.6	90.37
10	348.8	723.8	80.34
15.85	543.7	967.7	70.03
25.12	817.1	1264	59.92
39.82	1194	1611	50.37
63.1	1702	2000	41.63
100	2362	2417	33.79

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G'$_R$ = G' M/cRT
-	600,000	0.08	313	-	2081825600	-
5.93E-04	600,000	0.08	313	3.56E+02	2081825600	1.71E-07
0.02851	600,000	0.08	313	1.71E+04	2081825600	8.22E-06
0.3124	600,000	0.08	313	1.87E+05	2081825600	9.00E-05
3.518	600,000	0.08	313	2.11E+06	2081825600	1.01E-03
33.14	600,000	0.08	313	1.99E+07	2081825600	9.55E-03
172.5	600,000	0.08	313	1.04E+08	2081825600	4.97E-02
582.6	600,000	0.08	313	3.50E+08	2081825600	1.68E-01
1538	600,000	0.08	313	9.23E+08	2081825600	4.43E-01
2458	600,000	0.08	313	1.47E+09	2081825600	7.08E-01

G" (dyne/cm²)	ω (rad/s)	η$_s$ (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
-	0.0063	0.0068	600,000	0.08	313	-	2081825600	-
1.724	0.0188	0.0068	600,000	0.08	313	1034323	2081825600	0.00050
5.618	0.0628	0.0068	600,000	0.08	313	3370544	2081825600	0.00162
18.21	0.2149	0.0068	600,000	0.08	313	10925123	2081825600	0.00525
59.12	0.6974	0.0068	600,000	0.08	313	35469154	2081825600	0.01704
180.1	2.2638	0.0068	600,000	0.08	313	1.08E+08	2081825600	0.05190
466.8	7.3513	0.0068	600,000	0.08	313	2.8E+08	2081825600	0.13452
1004	23.857	0.0068	600,000	0.08	313	6.02E+08	2081825600	0.28931
1884	77.409	0.0068	600,000	0.08	313	1.13E+09	2081825600	0.54283
3758	251.33	0.0068	600,000	0.08	313	2.25E+09	2081825600	1.08260

ω (rad/sec)	η$_s$ (poise)	η$_0$ (poise)	M (g/mol)	ω(η$_0$ - η$_s$)M	cRT	ω(η$_0$-η$_s$)M/cRT
0.0063	0.0068	84.86	600,000	319889	2081825600	0.00015
0.0204	0.0068	84.86	600,000	1038360	2081825600	0.00050
0.0628	0.0068	84.86	600,000	3198890	2081825600	0.00154
0.2149	0.0068	84.86	600,000	10940205	2081825600	0.00526
0.6974	0.0068	84.86	600,000	35507682	2081825600	0.01706
2.2638	0.0068	84.86	600,000	115256017	2081825600	0.05536
7.3513	0.0068	84.86	600,000	374270162	2081825600	0.17978
23.857	0.0068	84.86	600,000	1214618638	2081825600	0.58344
77.409	0.0068	84.86	600,000	3941032821	2081825600	1.89307
251.327	0.0068	84.86	600,000	12795561108	2081825600	6.14632

(v) PEO ($M_w = 6 \times 10^5$ g/mol) 8 g/dL in water at 50°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.01	0.9828	1.745	200.3
0.0159	1.014	2.877	192.5
0.0251	1.316	4.935	203.3
0.0398	1.77	7.97	205.1
0.0631	2.385	13.03	209.9
0.1	3.943	20.11	204.9
0.1585	5.704	31.05	199.2
0.2512	9.572	47.18	191.6
0.3981	15.89	70.85	182.4
0.6310	26.41	105.6	172.5
1	44	155.8	161.9
1.585	72.65	225.7	149.6
2.512	118.1	321.4	136.3
3.981	190.7	450.1	122.8
6.310	298.6	619.8	109.0
10	458.2	836.3	95.36
15.85	686.1	1106	82.10
25.12	1003	1428	69.46
39.82	1433	1805	57.87
63.1	2005	2224	47.46
100	2745	2665	38.26

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.0177	600,000	0.08	323	1.06E+04	2148337600	4.95E-06
0.2067	600,000	0.08	323	1.24E+05	2148337600	5.77E-05
2.302	600,000	0.08	323	1.38E+06	2148337600	6.43E-04
23.28	600,000	0.08	323	1.40E+07	2148337600	6.50E-03
134.5	600,000	0.08	323	8.07E+07	2148337600	3.76E-02
488.9	600,000	0.08	323	2.93E+08	2148337600	1.37E-01
1348	600,000	0.08	323	8.09E+08	2148337600	3.76E-01
3102	600,000	0.08	323	1.86E+09	2148337600	8.66E-01

G'' (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	$(G'' - \omega\eta_s)M$	cRT	$(G'' - \omega\eta_s)M/cRT$
0.4307	0.0063	0.005	600,000	0.08	323	258401.2	2148337600	0.000120
1.418	0.0204	0.005	600,000	0.08	323	850738.8	2148337600	0.000396
4.626	0.0628	0.005	600,000	0.08	323	2775412	2148337600	0.001292
15.01	0.2149	0.005	600,000	0.08	323	9005355	2148337600	0.004192
48.87	0.6974	0.005	600,000	0.08	323	29319908	2148337600	0.013648
151.6	2.2638	0.005	600,000	0.08	323	90953209	2148337600	0.042337
407	7.3513	0.005	600,000	0.08	323	2.44E+08	2148337600	0.113659
914.3	23.857	0.005	600,000	0.08	323	5.49E+08	2148337600	0.255318
1767	77.409	0.005	600,000	0.08	323	1.06E+09	2148337600	0.493390
3108	251.33	0.005	600,000	0.08	323	1.86E+09	2148337600	0.867669

ω (rad/sec)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$w(\eta_0-\eta_s)M/cRT$
0.0063	0.0068	84.86	600,000	319889	2148337600	0.00015
0.0204	0.0068	84.86	600,000	1038360	2148337600	0.00048
0.0628	0.0068	84.86	600,000	3198890	2148337600	0.00149
0.2149	0.0068	84.86	600,000	10940205	2148337600	0.00509
0.6974	0.0068	84.86	600,000	35507682	2148337600	0.01653
2.2638	0.0068	84.86	600,000	115256017	2148337600	0.05365
7.3513	0.0068	84.86	600,000	374270162	2148337600	0.17421
23.857	0.0068	84.86	600,000	1214618638	2148337600	0.56538
77.409	0.0068	84.86	600,000	3941032821	2148337600	1.83446
251.33	0.0068	84.86	600,000	12795561108	2148337600	5.95603

Appendix - 5

Viscoelastic Properties of HTAC Micelles

5.1 Effect of surfactant concentration

(i) HTAC 0.25 M (8 g/dL) in water at 30°C (Strain = 500%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
1.0	0.0021	0.0168	0.0169
1.3	0.0029	0.0211	0.0169
1.6	0.0046	0.0261	0.0167
2.0	0.0069	0.0328	0.0168
2.5	0.0097	0.0387	0.0159
3.2	0.0172	0.0483	0.0162
4.0	0.0252	0.0595	0.0162
5.0	0.0393	0.0700	0.0160
6.3	0.0599	0.0787	0.0157
7.9	0.0826	0.0843	0.0149
10.0	0.1160	0.0832	0.0143
12.6	0.1516	0.0669	0.0132
15.9	0.1787	0.0319	0.0115
20.0	0.1964	0.0000	0.0098
25.1	0.1890	0.0000	0.0075
31.6	0.1647	0.0000	0.0052
39.8	0.1133	0.0000	0.0028
50.1	0.0949	0.0000	0.0019
63.1	0.0984	0.0000	0.0016
79.4	0.4408	0.0000	0.0056
100.0	0.0000	0.0000	0.0000

(ii) HTAC 0. 5 M (16 g/dL) in water at 30°C (Strain = 500%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
1.00	0.0015	0.0435	0.0435
1.26	0.0029	0.0548	0.0436
1.59	0.0046	0.0691	0.0437
2.00	0.0078	0.0866	0.0436
2.51	0.0101	0.1102	0.0440
3.16	0.0202	0.1353	0.0433
3.98	0.0301	0.1705	0.0435
5.01	0.0453	0.2107	0.0430
6.31	0.0727	0.2589	0.0426
7.94	0.1117	0.3180	0.0424
10.00	0.1731	0.3821	0.0420
12.59	0.2552	0.4425	0.0406
15.85	0.3751	0.4975	0.0393
19.95	0.5329	0.5262	0.0375
25.12	0.7268	0.4928	0.0350
31.62	0.9364	0.3954	0.0321
39.80	1.1360	0.1846	0.0289
50.11	1.2680	0.0000	0.0253

5.1 Effect of temperature

(i) HTAC 0.5 M (16 g/dL) in water at 10°C (Strain = 500%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
1.0	0.0020	0.0704	0.0705
1.3	0.0029	0.0885	0.0703
1.6	0.0048	0.1113	0.0703
2.0	0.0074	0.1399	0.0702
2.5	0.0098	0.1753	0.0699
3.2	0.0182	0.2213	0.0702
4.0	0.0302	0.2771	0.0700
5.0	0.0455	0.3450	0.0694
6.3	0.0728	0.4329	0.0696
7.9	0.1158	0.5375	0.0692
10.0	0.1763	0.6634	0.0687
12.6	0.2773	0.8082	0.0679
15.9	0.4217	0.9741	0.0670
20.0	0.6360	1.1470	0.0657
25.1	0.9446	1.2970	0.0639
31.6	1.3560	1.3840	0.0613
39.8	1.8730	1.3390	0.0579
50.1	2.4580	1.0850	0.0536
63.1	3.0540	0.5575	0.0492
79.4	3.7880	0.0000	0.0477
100.0	0.1907	0.0000	0.0019

(ii) HTAC 0.5 M (16 g/dL) in water at 20°C (Strain = 500%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
1.0	0.0456	0.0793	0.0665
1.3	0.0417	0.0887	0.0664
1.6	0.0420	0.1087	0.0662
2.0	0.0429	0.1317	0.0659
2.5	0.0484	0.1630	0.0657
3.2	0.0554	0.1966	0.0646
4.0	0.0652	0.2400	0.0625
5.0	0.0824	0.2985	0.0618
6.3	0.1055	0.3678	0.0607
7.9	0.1439	0.4478	0.0592
10.0	0.2059	0.5371	0.0575
12.6	0.2964	0.6447	0.0564
15.9	0.4299	0.7481	0.0544
20.0	0.6176	0.8375	0.0522
25.1	0.8801	0.8939	0.0499
31.6	1.1930	0.8570	0.0465
39.8	1.5550	0.6945	0.0428
50.1	1.9030	0.3638	0.0387
63.1	2.1870	0.0000	0.0347
79.4	2.5970	0.0000	0.0327
100.0	0.0000	0.0000	0.0000

(iii) HTAC 0.5 M (16 g/dL) in water at 40°C (Strain = 500%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
1.0	0.0011	0.0361	0.0361
1.3	0.0026	0.0432	0.0344
1.6	0.0043	0.0565	0.0357
2.0	0.0064	0.0712	0.0358
2.5	0.0120	0.0942	0.0378
3.2	0.0174	0.1086	0.0348
4.0	0.0285	0.1393	0.0357
5.0	0.0427	0.1694	0.0349
6.3	0.0713	0.2186	0.0364
7.9	0.1091	0.2635	0.0359
10.0	0.1623	0.3147	0.0354
12.6	0.2409	0.3559	0.0341
15.9	0.3517	0.3827	0.0328
20.0	0.4842	0.3751	0.0307
25.1	0.6200	0.3067	0.0275
31.6	0.7854	0.1986	0.0256
39.8	0.8959	0.0000	0.0225
50.1	0.9346	0.0000	0.0187
63.1	0.9174	0.0000	0.0145
79.4	1.0950	0.0000	0.0138
100.0	0.0000	0.0000	0.0000

(iv) HTAC 0.5 M (16 g/dL) in water at 50°C (Strain = 500%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η^* (poise)
1.0	0.0020	0.0289	0.0290
1.3	0.0031	0.0364	0.0290
1.6	0.0047	0.0453	0.0287
2.0	0.0075	0.0567	0.0287
2.5	0.0093	0.0694	0.0279
3.2	0.0185	0.0879	0.0284
4.0	0.0274	0.1084	0.0281
5.0	0.0401	0.1358	0.0283
6.3	0.0641	0.1611	0.0275
7.9	0.0979	0.1930	0.0272
10.0	0.1451	0.2200	0.0264
12.6	0.2130	0.2387	0.0254
15.9	0.2985	0.2400	0.0242
20.0	0.3948	0.2045	0.0223
25.1	0.4883	0.1230	0.0201
31.6	0.5525	0.0000	0.0175
39.8	0.5639	0.0000	0.0142
50.1	0.5589	0.0000	0.0104
63.1	0.5579	0.0000	0.0073
79.4	0.6657	0.0000	0.0084
100.0	0.0000	0.0000	0.0000

(v) Temperature dependence of G_0 and τ_R

T (°C)	G_0 (dyne/cm^2)	η_0 (centipoise)	τ_R (sec)
10	3.60 ± 0.21	0.0705	1.96 ± 0.07
20	2.25 ± 0.28	0.0665	2.96 ± 0.28
30	1.30 ± 0.14	0.0435	3.35 ± 0.32
40	0.98 ± 0.04	0.0361	3.86 ± 0.14
50	0.60 ± 0.04	0.0290	4.83 ± 0.31

(vi) Calculation of τ_{br}

T (°C)	G_0 (dyne/cm^2)	G' (dyne/cm^2)	DFS	$\bar{\varsigma}$	τ_R (sec)	τ_b (sec)
10	3.60 ± 0.21	2.7680	0.77	0.70 ± 0.03	1.96 ± 0.38	1.37
20	2.25 ± 0.28	1.7878	0.79	0.56 ± 0.08	2.96 ± 1.46	1.66
30	1.30 ± 0.14	1.0524	0.81	0.50 ± 0.08	3.35 ± 1.28	1.67
40	0.98 ± 0.04	0.7654	0.78	0.64 ± 0.03	3.86 ± 0.46	2.47
50	0.60 ± 0.04	0.4800	0.80	0.51 ± 0.05	4.83 ± 0.62	2.47

(vii) The Cole-Cole plot data at 10°C

G' (dyne/cm^2)	G" (dyne/cm^2)	G_0 (dyne/cm^2)	G'/G_0	G"/G_0
0.0020	0.0704	3.60	0.0006	0.0196
0.0029	0.0885	3.60	0.0008	0.0246
0.0048	0.1113	3.60	0.0013	0.0309
0.0074	0.1399	3.60	0.0021	0.0389
0.0098	0.1753	3.60	0.0027	0.0487
0.0182	0.2213	3.60	0.0051	0.0615
0.0302	0.2771	3.60	0.0084	0.0770
0.0455	0.3450	3.60	0.0126	0.0958
0.0728	0.4329	3.60	0.0202	0.1203
0.1158	0.5375	3.60	0.0322	0.1493
0.1763	0.6634	3.60	0.0490	0.1843
0.2773	0.8082	3.60	0.0770	0.2245
0.4217	0.9741	3.60	0.1171	0.2706
0.6360	1.1470	3.60	0.1767	0.3186
0.9446	1.2970	3.60	0.2624	0.3603
1.3560	1.3840	3.60	0.3767	0.3844
1.8730	1.3390	3.60	0.5203	0.3719
2.4580	1.0850	3.60	0.6828	0.3014
3.0540	0.5575	3.60	0.8483	0.1549
3.7880	0.0000	3.60	1.0522	0.0000

(viii) The Cole-Cole plot data at 20°C

G' (dyne/cm^2)	G" (dyne/cm^2)	G$_0$ (dyne/cm^2)	G'/G$_0$	G"/G$_0$
0.0456	0.0793	2.25	0.0020	0.0352
0.0417	0.0887	2.25	0.0032	0.0394
0.0420	0.1087	2.25	0.0042	0.0483
0.0429	0.1317	2.25	0.0064	0.0585
0.0484	0.1630	2.25	0.0171	0.0724
0.0554	0.1966	2.25	0.0246	0.0874
0.0652	0.2400	2.25	0.0290	0.1067
0.0824	0.2985	2.25	0.0366	0.1327
0.1055	0.3678	2.25	0.0469	0.1635
0.1439	0.4478	2.25	0.0640	0.1990
0.2059	0.5371	2.25	0.0915	0.2387
0.2964	0.6447	2.25	0.1317	0.2865
0.4299	0.7481	2.25	0.1911	0.3325
0.6176	0.8375	2.25	0.2745	0.3722
0.8801	0.8939	2.25	0.3912	0.3973
1.1930	0.8570	2.25	0.5302	0.3809
1.5550	0.6945	2.25	0.6911	0.3087
1.9030	0.3638	2.25	0.8458	0.1617
2.1870	0.0000	2.25	0.9720	0.0000

(ix) The Cole-Cole plot data at 30°C

G' (dyne/cm^2)	G" (dyne/cm^2)	G$_0$ (dyne/cm^2)	G'/G$_0$	G"/G$_0$
0.0015	0.0435	1.3	0.0012	0.0335
0.0029	0.0548	1.3	0.0022	0.0422
0.0046	0.0691	1.3	0.0035	0.0532
0.0078	0.0866	1.3	0.0060	0.0666
0.0101	0.1102	1.3	0.0078	0.0848
0.0202	0.1353	1.3	0.0155	0.1041
0.0301	0.1705	1.3	0.0232	0.1312
0.0453	0.2107	1.3	0.0348	0.1621
0.0727	0.2589	1.3	0.0559	0.1992
0.1117	0.3180	1.3	0.0859	0.2446
0.1731	0.3821	1.3	0.1332	0.2939
0.2552	0.4425	1.3	0.1963	0.3404
0.3751	0.4975	1.3	0.2885	0.3827
0.5329	0.5262	1.3	0.4099	0.4048
0.7268	0.4928	1.3	0.5591	0.3791
0.9364	0.3954	1.3	0.7203	0.3042
1.1360	0.1846	1.3	0.8738	0.1420
1.2680	0.0000	1.3	0.9754	0.0000

(x) The Cole-Cole plot data at 40°C

G' (dyne/cm^2)	G" (dyne/cm^2)	G$_0$ (dyne/cm^2)	G'/G$_0$	G"/G$_0$
0.0011	0.0361	0.98	0.0011	0.0368
0.0026	0.0432	0.98	0.0027	0.0441
0.0043	0.0565	0.98	0.0044	0.0577
0.0064	0.0712	0.98	0.0065	0.0727
0.0120	0.0942	0.98	0.0122	0.0961
0.0174	0.1086	0.98	0.0178	0.1108
0.0285	0.1393	0.98	0.0291	0.1421
0.0427	0.1694	0.98	0.0436	0.1729
0.0713	0.2186	0.98	0.0728	0.2231
0.1091	0.2635	0.98	0.1113	0.2689
0.1623	0.3147	0.98	0.1656	0.3211
0.2409	0.3559	0.98	0.2458	0.3632
0.3517	0.3827	0.98	0.3589	0.3905
0.4842	0.3751	0.98	0.4941	0.3828
0.6200	0.3067	0.98	0.6327	0.3234
0.7854	0.1986	0.98	0.8014	0.2027
0.8959	0.0000	0.98	0.9142	0.0000

(xi) The Cole-Cole plot data at 50°C

G' (dyne/cm^2)	G" (dyne/cm^2)	G$_0$ (dyne/cm^2)	G'/G$_0$	G"/G$_0$
0.0020	0.0289	0.6	0.0033	0.0482
0.0031	0.0364	0.6	0.0052	0.0607
0.0047	0.0453	0.6	0.0078	0.0755
0.0075	0.0567	0.6	0.0125	0.0945
0.0093	0.0694	0.6	0.0155	0.1157
0.0185	0.0879	0.6	0.0308	0.1465
0.0274	0.1084	0.6	0.0457	0.1807
0.0401	0.1358	0.6	0.0668	0.2263
0.0641	0.1611	0.6	0.1068	0.2685
0.0979	0.1930	0.6	0.1632	0.3217
0.1451	0.2200	0.6	0.2418	0.3667
0.2130	0.2387	0.6	0.3550	0.3978
0.2985	0.2400	0.6	0.4975	0.4000
0.3948	0.2045	0.6	0.6580	0.3408
0.4883	0.1230	0.6	0.8138	0.2050

Appendix - 6

Viscoelastic Properties of PEO-HTAC Complex Solution

6.1 Effect of surfactant concentration and temperature

6.1.1 PEO 4 g/dL-HTAC 2 g/dL in water

(i) PEO 4 g/dL – HTAC 2 g/dL (c_s/c_p = 0.5) in water at 10°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η^* (poise)
0.10	0.05	1.45	12.69
0.16	0.16	2.25	12.64
0.25	0.19	3.59	12.60
0.40	0.24	5.77	12.51
0.63	0.53	8.93	12.37
1.00	1.04	14.27	12.31
1.59	2.23	22.10	12.01
2.51	4.79	34.38	11.82
3.98	9.38	51.92	11.25
6.31	18.02	77.16	10.56
10.00	33.60	112.60	9.75
15.85	57.84	160.30	9.25
25.12	96.38	223.40	8.69
39.81	153.60	304.00	7.56
63.10	236.30	405.00	6.43
100.00	350.60	528.40	5.34

Figure is shown in Section 4.6.1.

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.05	600,319	0.06	283	30670	1411717200	2.173E-05
0.16	600,319	0.06	283	95391	1411717200	6.757E-05
0.19	600,319	0.06	283	112560	1411717200	7.973E-05
0.24	600,319	0.06	283	145337	1411717200	1.030E-04
0.53	600,319	0.06	283	319610	1411717200	2.264E-04
1.04	600,319	0.06	283	621930	1411717200	4.405E-04
2.23	600,319	0.06	283	1337511	1411717200	9.474E-04
4.79	600,319	0.06	283	2872526	1411717200	2.035E-03
9.38	600,319	0.06	283	5632193	1411717200	3.990E-03
18.02	600,319	0.06	283	10817748	1411717200	7.663E-03
33.60	600,319	0.06	283	20170718	1411717200	1.429E-02
57.84	600,319	0.06	283	34722451	1411717200	2.460E-02
96.38	600,319	0.06	283	57858745	1411717200	4.098E-02
153.60	600,319	0.06	283	92208998	1411717200	6.532E-02
236.30	600,319	0.06	283	141855380	1411717200	1.005E-01
350.60	600,319	0.06	283	210471841	1411717200	1.491E-01

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη_s)M	cRT	(G" - ωη_s)M/cRT
1.45	0.1	0.0115	600,319	0.06	283	868572	1411717200	0.000615
2.25	0.1585	0.0115	600,319	0.06	283	1350824	1411717200	0.000957
3.59	0.2512	0.0115	600,319	0.06	283	2151010	1411717200	0.001524
5.77	0.3981	0.0115	600,319	0.06	283	3461693	1411717200	0.002452
8.93	0.631	0.0115	600,319	0.06	283	5355292	1411717200	0.003793
14.27	1	0.0115	600,319	0.06	283	8559648	1411717200	0.006063
22.10	1.585	0.0115	600,319	0.06	283	13256108	1411717200	0.009390
34.38	2.512	0.0115	600,319	0.06	283	20621625	1411717200	0.014607
51.92	3.981	0.0115	600,319	0.06	283	31141079	1411717200	0.022059
77.16	6.31	0.0115	600,319	0.06	283	46277052	1411717200	0.032781
112.60	10	0.0115	600,319	0.06	283	67526883	1411717200	0.047833
160.30	15.85	0.0115	600,319	0.06	283	96121713	1411717200	0.068089
223.40	25.12	0.0115	600,319	0.06	283	133937844	1411717200	0.094876
304.00	39.82	0.0115	600,319	0.06	283	182222072	1411717200	0.129078
405.00	63.1	0.0115	600,319	0.06	283	242693574	1411717200	0.171914
528.40	100	0.0115	600,319	0.06	283	316518193	1411717200	0.224208

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η_0 - η_s)M	cRT	ω(η_0-η_s)M/cRT
0.01	0.0115	11.89	600,319	71308	1411717200	5.051E-05
0.0159	0.0115	11.89	600,319	113024	1411717200	8.006E-05
0.0251	0.0115	11.89	600,319	179127	1411717200	1.269E-04
0.0398	0.0115	11.89	600,319	283880	1411717200	2.011E-04
0.0631	0.0115	11.89	600,319	449959	1411717200	3.187E-04
0.1	0.0115	11.89	600,319	713089	1411717200	5.051E-04
0.1585	0.0115	11.89	600,319	1130246	1411717200	8.006E-04
0.2512	0.0115	11.89	600,319	1791279	1411717200	1.269E-03
0.3981	0.0115	11.89	600,319	2838807	1411717200	2.011E-03
0.6310	0.0115	11.89	600,319	4499591	1411717200	3.187E-03
1	0.0115	11.89	600,319	7130889	1411717200	5.051E-03
1.585	0.0115	11.89	600,319	11302459	1411717200	8.006E-03
2.512	0.0115	11.89	600,319	17912794	1411717200	1.269E-02
3.981	0.0115	11.89	600,319	28388070	1411717200	2.011E-02
6.31	0.0115	11.89	600,319	44995911	1411717200	3.187E-02
10	0.0115	11.89	600,319	71308892	1411717200	5.051E-02
15.85	0.0115	11.89	600,319	113024594	1411717200	8.006E-02
25.12	0.0115	11.89	600,319	179127938	1411717200	1.269E-01
39.82	0.0115	11.89	600,319	283952010	1411717200	2.011E-01
63.1	0.0115	11.89	600,319	449959111	1411717200	3.187E-01
100	0.0115	11.89	600,319	713088924	1411717200	5.051E-01

(ii) PEO 4 g/dL – HTAC 2 g/dL (c_s/c_p = 0.5) in water at 20°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.10	0.04	1.11	11.09
0.16	0.03	1.62	10.63
0.25	0.09	2.60	10.65
0.40	0.15	4.25	10.68
0.63	0.26	6.63	10.52
1.00	0.53	10.30	10.32
1.59	1.18	16.18	10.23
2.51	2.74	25.16	10.07
3.98	5.35	38.87	9.86
6.31	10.89	58.95	9.50
10.00	20.94	87.77	9.02
15.85	38.08	127.60	8.40
25.12	66.23	181.90	7.71
39.81	110.30	253.00	6.93
63.10	176.00	344.80	6.14
100.00	269.80	458.20	5.32

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.04	600,319	0.06	293	2.49E+04	1461601200	1.704E-05
0.03	600,319	0.06	293	1.57E+04	1461601200	1.072E-05
0.09	600,319	0.06	293	5.10E+04	1461601200	3.492E-05
0.15	600,319	0.06	293	9.15E+04	1461601200	6.264E-05
0.26	600,319	0.06	293	1.58E+05	1461601200	1.081E-04
0.53	600,319	0.06	293	3.17E+05	1461601200	2.166E-04
1.18	600,319	0.06	293	7.07E+05	1461601200	4.834E-04
2.74	600,319	0.06	293	1.65E+06	1461601200	1.127E-03
5.35	600,319	0.06	293	3.21E+06	1461601200	2.199E-03
10.89	600,319	0.06	293	6.54E+06	1461601200	4.473E-03
20.94	600,319	0.06	293	1.26E+07	1461601200	8.601E-03
38.08	600,319	0.06	293	2.29E+07	1461601200	1.564E-02
66.23	600,319	0.06	293	3.98E+07	1461601200	2.720E-02
110.30	600,319	0.06	293	6.62E+07	1461601200	4.530E-02
176.00	600,319	0.06	293	1.06E+08	1461601200	7.229E-02
269.80	600,319	0.06	293	1.62E+08	1461601200	1.108E-01

G" (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - $\omega\eta_s$)M	cRT	(G" - $\omega\eta_s$)M/cRT
1.11	0.1	0.01	600,319	0.06	293	664553	1461601200	0.000455
1.62	0.1585	0.01	600,319	0.06	293	972166	1461601200	0.000665
2.60	0.2512	0.01	600,319	0.06	293	1558121	1461601200	0.001066
4.25	0.3981	0.01	600,319	0.06	293	2547765	1461601200	0.001743
6.63	0.631	0.01	600,319	0.06	293	3978128	1461601200	0.002722
10.30	1	0.01	600,319	0.06	293	6177283	1461601200	0.004226
16.18	1.585	0.01	600,319	0.06	293	9703646	1461601200	0.006639
25.16	2.512	0.01	600,319	0.06	293	15088946	1461601200	0.010324
38.87	3.981	0.01	600,319	0.06	293	23310501	1461601200	0.015949
58.95	6.31	0.01	600,319	0.06	293	35350925	1461601200	0.024186
87.77	10	0.01	600,319	0.06	293	52629967	1461601200	0.036008
127.60	15.85	0.01	600,319	0.06	293	76505554	1461601200	0.052344
181.90	25.12	0.01	600,319	0.06	293	109047226	1461601200	0.074608
253.00	39.82	0.01	600,319	0.06	293	151641660	1461601200	0.103750
344.80	63.1	0.01	600,319	0.06	293	206611190	1461601200	0.141359
458.20	100	0.01	600,319	0.06	293	274465847	1461601200	0.187784

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.01	8.99	600,319	53908	1461601200	3.688E-05
0.0159	0.01	8.99	600,319	85445	1461601200	5.846E-05
0.0251	0.01	8.99	600,319	135418	1461601200	9.265E-05
0.0398	0.01	8.99	600,319	214610	1461601200	1.468E-04
0.0631	0.01	8.99	600,319	340164	1461601200	2.327E-04
0.1	0.01	8.99	600,319	539086	1461601200	3.688E-04
0.1585	0.01	8.99	600,319	854452	1461601200	5.846E-04
0.2512	0.01	8.99	600,319	1354185	1461601200	9.265E-04
0.3981	0.01	8.99	600,319	2146103	1461601200	1.468E-03
0.6310	0.01	8.99	600,319	3401636	1461601200	2.327E-03
1	0.01	8.99	600,319	5390865	1461601200	3.688E-03
1.585	0.01	8.99	600,319	8544520	1461601200	5.846E-03
2.512	0.01	8.99	600,319	13541852	1461601200	9.265E-03
3.981	0.01	8.99	600,319	21461032	1461601200	1.468E-02
6.31	0.01	8.99	600,319	34016356	1461601200	2.327E-02
10	0.01	8.99	600,319	53908646	1461601200	3.688E-02
15.85	0.01	8.99	600,319	85445204	1461601200	5.846E-02
25.12	0.01	8.99	600,319	135418519	1461601200	9.265E-02
39.82	0.01	8.99	600,319	214664229	1461601200	1.469E-01
63.1	0.01	8.99	600,319	340163558	1461601200	2.327E-01
100	0.01	8.99	600,319	539086462	1461601200	3.688E-01

(iii) PEO 4 g/dL – HTAC 2 g/dL ($c_s/c_p = 0.5$) in water at 30°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.10	0.03	1.33	13.25
0.16	0.06	2.02	12.73
0.25	0.02	3.13	12.46
0.40	0.11	4.86	12.20
0.63	0.36	7.65	12.13
1.00	0.80	12.03	12.06
1.59	1.63	18.82	11.92
2.51	3.39	29.09	11.66
3.98	6.87	44.80	11.38
6.31	13.55	67.58	10.92
10.00	25.22	100.30	10.34
15.85	45.51	145.40	9.61
25.12	78.39	206.20	8.78
39.81	129.10	286.20	7.89
63.10	204.80	387.80	6.95
100.00	312.40	513.40	6.01

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G'M/cRT
0.03	600,319	0.06	303	1.61E+04	1511485200	1.06E-05
0.06	600,319	0.06	303	3.61E+04	1511485200	2.39E-05
0.02	600,319	0.06	303	9.74E+03	1511485200	6.45E-06
0.11	600,319	0.06	303	6.33E+04	1511485200	4.19E-05
0.36	600,319	0.06	303	2.15E+05	1511485200	1.42E-04
0.80	600,319	0.06	303	4.79E+05	1511485200	3.17E-04
1.63	600,319	0.06	303	9.80E+05	1511485200	6.49E-04
3.39	600,319	0.06	303	2.03E+06	1511485200	1.35E-03
6.87	600,319	0.06	303	4.12E+06	1511485200	2.73E-03
13.55	600,319	0.06	303	8.13E+06	1511485200	5.38E-03
25.22	600,319	0.06	303	1.51E+07	1511485200	1.00E-02
45.51	600,319	0.06	303	2.73E+07	1511485200	1.81E-02
78.39	600,319	0.06	303	4.71E+07	1511485200	3.11E-02
129.10	600,319	0.06	303	7.75E+07	1511485200	5.13E-02
204.80	600,319	0.06	303	1.23E+08	1511485200	8.13E-02
312.40	600,319	0.06	303	1.88E+08	1511485200	1.24E-01

G" (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
1.33	0.1	0.0082	600,319	0.06	303	794930	1511485200	0.000526
2.02	0.1585	0.0082	600,319	0.06	303	1210063	1511485200	0.000801
3.13	0.2512	0.0082	600,319	0.06	303	1877762	1511485200	0.001242
4.86	0.3981	0.0082	600,319	0.06	303	2913189	1511485200	0.001927
7.65	0.631	0.0082	600,319	0.06	303	4588134	1511485200	0.003036
12.03	1	0.0082	600,319	0.06	303	7216915	1511485200	0.004775
18.82	1.585	0.0082	600,319	0.06	303	11290201	1511485200	0.007470
29.09	2.512	0.0082	600,319	0.06	303	17450914	1511485200	0.011546
44.80	3.981	0.0082	600,319	0.06	303	26874694	1511485200	0.017780
67.58	6.31	0.0082	600,319	0.06	303	40538496	1511485200	0.026820
100.30	10	0.0082	600,319	0.06	303	60162770	1511485200	0.039804
145.40	15.85	0.0082	600,319	0.06	303	87208359	1511485200	0.057697
206.20	25.12	0.0082	600,319	0.06	303	123662122	1511485200	0.081815
286.20	39.82	0.0082	600,319	0.06	303	171615279	1511485200	0.113541
387.80	63.1	0.0082	600,319	0.06	303	232493091	1511485200	0.153818
513.40	100	0.0082	600,319	0.06	303	307711513	1511485200	0.203582

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.0082	10.23	600,319	61363.41	1511485200	4.060E-05
0.0159	0.0082	10.23	600,319	97261.00	1511485200	6.435E-05
0.0251	0.0082	10.23	600,319	154144.9	1511485200	1.020E-04
0.0398	0.0082	10.23	600,319	244287.7	1511485200	1.616E-04
0.0631	0.0082	10.23	600,319	387203	1511485200	2.562E-04
0.1	0.0082	10.23	600,319	613634	1511485200	4.060E-04
0.1585	0.0082	10.23	600,319	972610	1511485200	6.435E-04
0.2512	0.0082	10.23	600,319	1541449	1511485200	1.020E-03
0.3981	0.0082	10.23	600,319	2442877	1511485200	1.616E-03
0.6310	0.0082	10.23	600,319	3872031	1511485200	2.562E-03
1	0.0082	10.23	600,319	6136341	1511485200	4.060E-03
1.585	0.0082	10.23	600,319	9726100	1511485200	6.435E-03
2.512	0.0082	10.23	600,319	15414488	1511485200	1.020E-02
3.981	0.0082	10.23	600,319	24428773	1511485200	1.616E-02
6.31	0.0082	10.23	600,319	38720310	1511485200	2.562E-02
10	0.0082	10.23	600,319	61363408	1511485200	4.060E-02
15.85	0.0082	10.23	600,319	97261001	1511485200	6.435E-02
25.12	0.0082	10.23	600,319	154144880	1511485200	1.020E-01
39.82	0.0082	10.23	600,319	244349089	1511485200	1.617E-01
63.1	0.0082	10.23	600,319	387203102	1511485200	2.562E-01
100	0.0082	10.23	600,319	613634075	1511485200	4.060E-01

(iv) PEO 4 g/dL – HTAC 2 g/dL (c_s/c_p = 0.5) in water at 40°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.10	0.1267	1.288	12.94
0.16	0.05785	2.23	14.07
0.25	0.1999	3.673	14.64
0.40	0.3204	5.663	14.25
0.63	0.6126	8.996	14.29
1.00	1.222	14.07	14.12
1.59	2.412	21.93	13.92
2.51	4.792	33.81	13.59
3.98	9.201	51.4	13.12
6.31	17.29	76.89	12.49
10.00	31.75	113.3	11.77
15.85	55.41	163.4	10.88
25.12	92.96	230.2	9.885
39.81	150.6	317.3	8.822
63.10	235.5	428.1	7.743
100.00	355.2	565.1	6.674

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.1267	600,319	0.06	313	7.61E+04	1561369200	4.871E-05
0.05785	600,319	0.06	313	3.47E+04	1561369200	2.224E-05
0.1999	600,319	0.06	313	1.20E+05	1561369200	7.686E-05
0.3204	600,319	0.06	313	1.92E+05	1561369200	1.232E-04
0.6126	600,319	0.06	313	3.68E+05	1561369200	2.355E-04
1.222	600,319	0.06	313	7.34E+05	1561369200	4.698E-04
2.412	600,319	0.06	313	1.45E+06	1561369200	9.274E-04
4.792	600,319	0.06	313	2.88E+06	1561369200	1.842E-03
9.201	600,319	0.06	313	5.52E+06	1561369200	3.538E-03
17.29	600,319	0.06	313	1.04E+07	1561369200	6.648E-03
31.75	600,319	0.06	313	1.91E+07	1561369200	1.221E-02
55.41	600,319	0.06	313	3.33E+07	1561369200	2.130E-02
92.96	600,319	0.06	313	5.58E+07	1561369200	3.574E-02
150.6	600,319	0.06	313	9.04E+07	1561369200	5.790E-02
235.5	600,319	0.06	313	1.41E+08	1561369200	9.055E-02
355.2	600,319	0.06	313	2.13E+08	1561369200	1.366E-01

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη_s)M	cRT	(G" - ωη_s)M/cRT
1.288	0.1	0.0068	600,319	0.06	313	772803	1561369200	0.000495
2.23	0.1585	0.0068	600,319	0.06	313	1338064	1561369200	0.000857
3.673	0.2512	0.0068	600,319	0.06	313	2203946	1561369200	0.001412
5.663	0.3981	0.0068	600,319	0.06	313	3397981	1561369200	0.002176
8.996	0.6310	0.0068	600,319	0.06	313	5397894	1561369200	0.003457
14.07	1	0.0068	600,319	0.06	313	8442406	1561369200	0.005407
21.93	1.585	0.0068	600,319	0.06	313	13158525	1561369200	0.008428
33.81	2.512	0.0068	600,319	0.06	313	20286531	1561369200	0.012993
51.4	3.981	0.0068	600,319	0.06	313	30840145	1561369200	0.019752
76.89	6.310	0.0068	600,319	0.06	313	46132769	1561369200	0.029546
113.3	10	0.0068	600,319	0.06	313	67975321	1561369200	0.043536
163.4	15.85	0.0068	600,319	0.06	313	98027422	1561369200	0.062783
230.2	25.12	0.0068	600,319	0.06	313	138090890	1561369200	0.088442
317.3	39.82	0.0068	600,319	0.06	313	190318667	1561369200	0.121892
428.1	63.1	0.0068	600,319	0.06	313	256738979	1561369200	0.164432
565.1	100	0.0068	600,319	0.06	313	338832050	1561369200	0.217010

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.0068	10.43	600,319	62572.45	1561369200	4.008E-05
0.0159	0.0068	10.43	600,319	99177.33	1561369200	6.352E-05
0.0251	0.0068	10.43	600,319	157182.0	1561369200	1.007E-04
0.0398	0.0068	10.43	600,319	249100.9	1561369200	1.595E-04
0.0631	0.0068	10.43	600,319	394832	1561369200	2.529E-04
0.1	0.0068	10.43	600,319	625725	1561369200	4.008E-04
0.1585	0.0068	10.43	600,319	991773	1561369200	6.352E-04
0.2512	0.0068	10.43	600,319	1571820	1561369200	1.007E-03
0.3981	0.0068	10.43	600,319	2491009	1561369200	1.595E-03
0.6310	0.0068	10.43	600,319	3948322	1561369200	2.529E-03
1	0.0068	10.43	600,319	6257245	1561369200	4.008E-03
1.585	0.0068	10.43	600,319	9917733	1561369200	6.352E-03
2.512	0.0068	10.43	600,319	15718199	1561369200	1.007E-02
3.981	0.0068	10.43	600,319	24910092	1561369200	1.595E-02
6.31	0.0068	10.43	600,319	39483216	1561369200	2.529E-02
10	0.0068	10.43	600,319	62572450	1561369200	4.008E-02
15.85	0.0068	10.43	600,319	99177333	1561369200	6.352E-02
25.12	0.0068	10.43	600,319	157181994	1561369200	1.007E-01
39.82	0.0068	10.43	600,319	249163496	1561369200	1.596E-01
63.1	0.0068	10.43	600,319	394832160	1561369200	2.529E-01
100	0.0068	10.43	600,319	625724500	1561369200	4.008E-01

(v) PEO 4 g/dL – HTAC 2 g/dL (c_s/c_p = 0.5) in water at 50°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.10	0.47	4.24	42.68
0.16	1.67	7.81	50.40
0.25	3.47	13.34	54.88
0.40	6.30	21.48	56.23
0.63	11.07	32.70	54.72
1.00	18.31	47.84	51.22
1.59	29.12	68.11	46.73
2.51	45.12	95.83	42.17
3.98	69.12	132.50	37.54
6.31	103.10	180.40	32.93
10.00	151.80	242.00	28.57
15.85	218.00	319.00	24.38
25.12	307.20	414.00	20.52
39.81	426.30	529.90	17.08
63.10	583.90	668.20	14.06
100.00	789.90	831.50	11.47

G (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G'M/cRT
0.47	600,319	0.06	323	2.83E+05	1611253200	1.754E-04
1.67	600,319	0.06	323	1.00E+06	1611253200	6.215E-04
3.47	600,319	0.06	323	2.08E+06	1611253200	1.292E-03
6.30	600,319	0.06	323	3.78E+06	1611253200	2.348E-03
11.07	600,319	0.06	323	6.65E+06	1611253200	4.124E-03
18.31	600,319	0.06	323	1.10E+07	1611253200	6.822E-03
29.12	600,319	0.06	323	1.75E+07	1611253200	1.085E-02
45.12	600,319	0.06	323	2.71E+07	1611253200	1.681E-02
69.12	600,319	0.06	323	4.15E+07	1611253200	2.575E-02
103.10	600,319	0.06	323	6.19E+07	1611253200	3.841E-02
151.80	600,319	0.06	323	9.11E+07	1611253200	5.656E-02
218.00	600,319	0.06	323	1.31E+08	1611253200	8.122E-02
307.20	600,319	0.06	323	1.84E+08	1611253200	1.145E-01
426.30	600,319	0.06	323	2.56E+08	1611253200	1.588E-01
583.90	600,319	0.06	323	3.51E+08	1611253200	2.175E-01
789.90	600,319	0.06	323	4.74E+08	1611253200	2.943E-01

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη_s)M	cRT	(G" - ωη_s)M/cRT
4.24	0.1	0.0057	600,319	0.06	323	2546211	1611253200	0.001580
7.81	0.1585	0.0057	600,319	0.06	323	4689150	1611253200	0.002910
13.34	0.2512	0.0057	600,319	0.06	323	8007396	1611253200	0.004970
21.48	0.3981	0.0057	600,319	0.06	323	12893490	1611253200	0.008002
32.70	0.6310	0.0057	600,319	0.06	323	19628272	1611253200	0.012182
47.84	1	0.0057	600,319	0.06	323	28715839	1611253200	0.017822
68.11	1.585	0.0057	600,319	0.06	323	40882304	1611253200	0.025373
95.83	2.512	0.0057	600,319	0.06	323	57519974	1611253200	0.035699
132.50	3.981	0.0057	600,319	0.06	323	79528645	1611253200	0.049358
180.40	6.31	0.0057	600,319	0.06	323	108275956	1611253200	0.067200
242.00	10	0.0057	600,319	0.06	323	145242980	1611253200	0.090143
319.00	15.85	0.0057	600,319	0.06	323	191447525	1611253200	0.118819
414.00	25.12	0.0057	600,319	0.06	323	248446110	1611253200	0.154194
529.90	39.82	0.0057	600,319	0.06	323	317972781	1611253200	0.197345
668.20	63.1	0.0057	600,319	0.06	323	400917239	1611253200	0.248823
831.50	100	0.0057	600,319	0.06	323	498823067	1611253200	0.309587

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η_0 - η_s)M	cRT	ω(η_0-η_s)M/cRT
0.1	0.0057	45.73	600,319	2744917	1611253200	1.704E-03
0.1585	0.0057	45.73	600,319	4350693	1611253200	2.700E-03
0.2512	0.0057	45.73	600,319	6895231	1611253200	4.279E-03
0.3981	0.0057	45.73	600,319	10927513	1611253200	6.782E-03
0.631	0.0057	45.73	600,319	17320424	1611253200	1.075E-02
1	0.0057	45.73	600,319	27449166	1611253200	1.704E-02
1.585	0.0057	45.73	600,319	43506928	1611253200	2.700E-02
2.512	0.0057	45.73	600,319	68952305	1611253200	4.279E-02
3.981	0.0057	45.73	600,319	109275130	1611253200	6.782E-02
6.31	0.0057	45.73	600,319	173204238	1611253200	1.075E-01
10	0.0057	45.73	600,319	274491661	1611253200	1.704E-01
15.85	0.0057	45.73	600,319	435069282	1611253200	2.700E-01
25.12	0.0057	45.73	600,319	689523051	1611253200	4.279E-01
39.82	0.0057	45.73	600,319	1093025792	1611253200	6.784E-01
63.1	0.0057	45.73	600,319	1732042378	1611253200	1.075E+00
100	0.0057	45.73	600,319	2744916605	1611253200	1.704E+00

6.1.2 PEO 4 g/dL-HTAC 6 g/dL in water

(i) PEO 4 g/dL – HTAC 6 g/dL (c_s/c_p = 1.5) in water at 10°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.10	0.56	3.47	35.15
0.16	0.72	5.31	33.80
0.25	0.85	8.12	32.50
0.40	1.23	12.46	31.46
0.63	2.24	19.48	31.07
1.00	3.88	29.97	30.22
1.59	7.26	45.73	29.22
2.51	13.88	69.07	28.05
3.98	25.59	102.20	26.47
6.31	46.39	148.40	24.64
10.00	79.57	210.60	22.51
15.85	130.60	291.10	20.13
25.12	206.90	393.50	17.70
39.81	315.40	519.70	15.27
63.10	465.60	671.70	12.95
100	668.00	851.40	10.82

Figure is shown in Section 4.6.1.

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.56	600,319	0.1	283	337259	2352862000	1.433E-04
0.72	600,319	0.1	283	431930	2352862000	1.836E-04
0.85	600,319	0.1	283	508530	2352862000	2.161E-04
1.23	600,319	0.1	283	738993	2352862000	3.141E-04
2.24	600,319	0.1	283	1344715	2352862000	5.715E-04
3.88	600,319	0.1	283	2329238	2352862000	9.900E-04
7.26	600,319	0.1	283	4359517	2352862000	1.853E-03
13.88	600,319	0.1	283	8332428	2352862000	3.541E-03
25.59	600,319	0.1	283	15362163	2352862000	6.529E-03
46.39	600,319	0.1	283	27848798	2352862000	1.184E-02
79.57	600,319	0.1	283	47767383	2352862000	2.030E-02
130.6	600,319	0.1	283	78401661	2352862000	3.332E-02
206.9	600,319	0.1	283	124206001	2352862000	5.279E-02
315.4	600,319	0.1	283	189340613	2352862000	8.047E-02
465.6	600,319	0.1	283	279508526	2352862000	1.188E-01
668.0	600,319	0.1	283	401013092	2352862000	1.704E-01

G" (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη_s)M	cRT	(G" - ωη_s)M/cRT
3.47	0.10	0.0115	600,319	0.1	283	2082417	2352862000	0.000885
5.31	0.16	0.0115	600,319	0.1	283	3185999	2352862000	0.001354
8.12	0.25	0.0115	600,319	0.1	283	4873456	2352862000	0.002071
12.46	0.40	0.0115	600,319	0.1	283	7477226	2352862000	0.003178
19.48	0.63	0.0115	600,319	0.1	283	11689858	2352862000	0.004968
29.97	1.00	0.0115	600,319	0.1	283	17984657	2352862000	0.007644
45.73	1.59	0.0115	600,319	0.1	283	27441646	2352862000	0.011663
69.07	2.51	0.0115	600,319	0.1	283	41446691	2352862000	0.017615
102.2	3.98	0.0115	600,319	0.1	283	61325118	2352862000	0.026064
148.4	6.31	0.0115	600,319	0.1	283	89043777	2352862000	0.037845
210.6	10.00	0.0115	600,319	0.1	283	126358145	2352862000	0.053704
291.1	15.85	0.0115	600,319	0.1	283	174643438	2352862000	0.074226
393.5	25.12	0.0115	600,319	0.1	283	236052106	2352862000	0.100326
519.7	39.81	0.0115	600,319	0.1	283	311710949	2352862000	0.132482
671.7	63.10	0.0115	600,319	0.1	283	402798651	2352862000	0.171195
851.4	100	0.0115	600,319	0.1	283	510421230	2352862000	0.216936

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η_0 - η_s)M	cRT	ω(η_0-η_s)M/cRT
0.10	0.0115	22.5	600,319	1350027	2352862000	5.738E-04
0.16	0.0115	22.5	600,319	2139793	2352862000	9.094E-04
0.25	0.0115	22.5	600,319	3391269	2352862000	1.441E-03
0.40	0.0115	22.5	600,319	5374459	2352862000	2.284E-03
0.63	0.0115	22.5	600,319	8518673	2352862000	3.621E-03
1.00	0.0115	22.5	600,319	13500274	2352862000	5.738E-03
1.59	0.0115	22.5	600,319	21397934	2352862000	9.094E-03
2.51	0.0115	22.5	600,319	33912688	2352862000	1.441E-02
3.98	0.0115	22.5	600,319	53744590	2352862000	2.284E-02
6.31	0.0115	22.5	600,319	85186728	2352862000	3.621E-02
10.00	0.0115	22.5	600,319	135002738	2352862000	5.738E-02
15.85	0.0115	22.5	600,319	213979340	2352862000	9.094E-02
25.12	0.0115	22.5	600,319	339126879	2352862000	1.441E-01
39.81	0.0115	22.5	600,319	537445901	2352862000	2.284E-01
63.10	0.0115	22.5	600,319	851867279	2352862000	3.621E-01
100	0.0115	22.5	600,319	1350027383	2352862000	5.738E-01

(ii) PEO 4 g/dL – HTAC 6 g/dL (c_s/c_p = 1.5) in water at 20°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.10	0.62	2.70	25.75
0.16	0.70	3.81	24.45
0.25	0.86	5.84	23.49
0.40	0.99	9.00	22.75
0.63	1.40	13.89	22.12
1.00	2.31	21.68	21.80
1.59	4.24	33.37	21.22
2.51	8.14	51.19	20.64
3.98	15.66	77.12	19.77
6.31	29.02	113.8	18.61
10.00	51.92	165.3	17.32
15.85	88.96	233.6	15.77
25.12	146.5	322.7	14.11
39.81	231.9	435.9	12.40
63.10	354.3	576.6	10.73
100	523.3	745.4	9.11

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.62	600,319	0.1	293	374539	2436002000	1.538E-04
0.70	600,319	0.1	293	419383	2436002000	1.722E-04
0.86	600,319	0.1	293	515554	2436002000	2.116E-04
0.99	600,319	0.1	293	592875	2436002000	2.434E-04
1.40	600,319	0.1	293	842848	2436002000	3.460E-04
2.31	600,319	0.1	293	1388538	2436002000	5.700E-04
4.24	600,319	0.1	293	2542951	2436002000	1.044E-03
8.14	600,319	0.1	293	4888998	2436002000	2.007E-03
15.66	600,319	0.1	293	9400996	2436002000	3.859E-03
29.02	600,319	0.1	293	17421257	2436002000	7.152E-03
51.92	600,319	0.1	293	31168562	2436002000	1.279E-02
88.96	600,319	0.1	293	53404378	2436002000	2.192E-02
146.5	600,319	0.1	293	87946734	2436002000	3.610E-02
231.9	600,319	0.1	293	139213976	2436002000	5.715E-02
354.3	600,319	0.1	293	212693022	2436002000	8.731E-02
523.3	600,319	0.1	293	314146933	2436002000	1.290E-01

G'' (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	$(G'' - \omega\eta_s)M$	cRT	$(G'' - \omega\eta_s)M/cRT$
2.70	0.10	0.01	600,319	0.1	293	1622662	2436002000	0.000666
3.81	0.16	0.01	600,319	0.1	293	2287465	2436002000	0.000939
5.84	0.25	0.01	600,319	0.1	293	3503154	2436002000	0.001438
9.00	0.40	0.01	600,319	0.1	293	5402882	2436002000	0.002218
13.89	0.63	0.01	600,319	0.1	293	8334643	2436002000	0.003421
21.68	1.00	0.01	600,319	0.1	293	13008913	2436002000	0.005340
33.37	1.59	0.01	600,319	0.1	293	20023130	2436002000	0.008220
51.19	2.51	0.01	600,319	0.1	293	30715250	2436002000	0.012609
77.12	3.98	0.01	600,319	0.1	293	46272703	2436002000	0.018995
113.8	6.31	0.01	600,319	0.1	293	68278422	2436002000	0.028029
165.3	10.00	0.01	600,319	0.1	293	99172699	2436002000	0.040711
233.6	15.85	0.01	600,319	0.1	293	140139368	2436002000	0.057528
322.7	25.12	0.01	600,319	0.1	293	193572141	2436002000	0.079463
435.9	39.81	0.01	600,319	0.1	293	261440065	2436002000	0.107323
576.6	63.10	0.01	600,319	0.1	293	345765134	2436002000	0.141940
745.4	100	0.01	600,319	0.1	293	446877464	2436002000	0.183447

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.10	0.01	17.25	600,319	1034949.96	2436002000	4.249E-04
0.16	0.01	17.25	600,319	1640395.68	2436002000	6.734E-04
0.25	0.01	17.25	600,319	2599794.3	2436002000	1.067E-03
0.40	0.01	17.25	600,319	4120135.8	2436002000	1.691E-03
0.63	0.01	17.25	600,319	6530534	2436002000	2.681E-03
1.00	0.01	17.25	600,319	10349500	2436002000	4.249E-03
1.59	0.01	17.25	600,319	16403957	2436002000	6.734E-03
2.51	0.01	17.25	600,319	25997943	2436002000	1.067E-02
3.98	0.01	17.25	600,319	41201358	2436002000	1.691E-02
6.31	0.01	17.25	600,319	65305342	2436002000	2.681E-02
10.00	0.01	17.25	600,319	103494996	2436002000	4.249E-02
15.85	0.01	17.25	600,319	164039568	2436002000	6.734E-02
25.12	0.01	17.25	600,319	259979429	2436002000	1.067E-01
39.81	0.01	17.25	600,319	412013577	2436002000	1.691E-01
63.10	0.01	17.25	600,319	653053422	2436002000	2.681E-01
100	0.01	17.25	600,319	1034949956	2436002000	4.249E-01

(iii) PEO 4 g/dL – HTAC 6 g/dL (c_s/c_p = 1.5) in water at 30°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.01	0.00	0.58	58.07
0.02	0.06	0.95	60.03
0.03	0.00	1.67	66.39
0.04	0.08	2.60	65.31
0.06	0.30	4.21	66.89
0.10	0.27	6.68	66.81
0.16	0.80	10.39	65.72
0.25	1.63	16.23	64.93
0.40	2.94	25.18	63.69
0.63	5.79	38.67	61.96
1.00	10.94	58.55	59.56
1.59	20.03	87.49	56.63
2.51	35.66	128.3	53.03
3.98	61.05	185.0	48.93
6.31	102.4	261.3	44.48
10.00	166.0	361.0	39.73
15.85	258.4	487.3	34.80
25.12	392.0	645.2	30.05
39.82	576.1	836.6	25.51
63.10	825.7	1060	21.29
100	1156	1317	17.53

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.00	600,319	0.1	303	0	2519142000	0.000E+00
0.06	600,319	0.1	303	33378	2519142000	1.325E-05
0.00	600,319	0.1	303	0	2519142000	0.000E+00
0.08	600,319	0.1	303	50475	2519142000	2.004E-05
0.30	600,319	0.1	303	182017	2519142000	7.225E-05
0.27	600,319	0.1	303	159805	2519142000	6.344E-05
0.80	600,319	0.1	303	481156	2519142000	1.910E-04
1.63	600,319	0.1	303	980921	2519142000	3.894E-04
2.94	600,319	0.1	303	1767339	2519142000	7.016E-04
5.79	600,319	0.1	303	3474046	2519142000	1.379E-03
10.94	600,319	0.1	303	6567490	2519142000	2.607E-03
20.03	600,319	0.1	303	12024390	2519142000	4.773E-03
35.66	600,319	0.1	303	21407376	2519142000	8.498E-03
61.05	600,319	0.1	303	36649475	2519142000	1.455E-02
102.4	600,319	0.1	303	61472666	2519142000	2.440E-02
166.0	600,319	0.1	303	99652954	2519142000	3.956E-02
258.4	600,319	0.1	303	155122430	2519142000	6.158E-02
392.0	600,319	0.1	303	235325048	2519142000	9.341E-02
576.1	600,319	0.1	303	345843776	2519142000	1.373E-01
825.7	600,319	0.1	303	495683398	2519142000	1.968E-01
1156	600,319	0.1	303	693968764	2519142000	2.755E-01

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - $\omega\eta_s$)M	cRT	(G" - $\omega\eta_s$)M/cRT
0.58	0.01	0.0082	600,319	0.1	303	348556	2519142000	0.000138
0.95	0.02	0.0082	600,319	0.1	303	570105	2519142000	0.000226
1.67	0.03	0.0082	600,319	0.1	303	1001208	2519142000	0.000397
2.60	0.04	0.0082	600,319	0.1	303	1560033	2519142000	0.000619
4.21	0.06	0.0082	600,319	0.1	303	2527032	2519142000	0.001003
6.68	0.10	0.0082	600,319	0.1	303	4007237	2519142000	0.001591
10.39	0.16	0.0082	600,319	0.1	303	6236534	2519142000	0.002476
16.23	0.25	0.0082	600,319	0.1	303	9741941	2519142000	0.003867
25.18	0.40	0.0082	600,319	0.1	303	15114073	2519142000	0.006000
38.67	0.63	0.0082	600,319	0.1	303	23211230	2519142000	0.009214
58.55	1.00	0.0082	600,319	0.1	303	35143755	2519142000	0.013951
87.49	1.59	0.0082	600,319	0.1	303	52514107	2519142000	0.020846
128.3	2.51	0.0082	600,319	0.1	303	77008562	2519142000	0.030569
185.0	3.98	0.0082	600,319	0.1	303	111039418	2519142000	0.044078
261.3	6.31	0.0082	600,319	0.1	303	156832293	2519142000	0.062256
361.0	10.00	0.0082	600,319	0.1	303	216665933	2519142000	0.086008
487.3	15.85	0.0082	600,319	0.1	303	292457425	2519142000	0.116094
645.2	25.12	0.0082	600,319	0.1	303	387202163	2519142000	0.153704
836.6	39.82	0.0082	600,319	0.1	303	502030857	2519142000	0.199286
1060	63.10	0.0082	600,319	0.1	303	636027523	2519142000	0.252478
1317	100	0.0082	600,319	0.1	303	790127861	2519142000	0.313650

ω rad/s	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)$M	cRT	$\omega(\eta_0-\eta_s)$M/cRT
0.01	0.0082	33.63	600,319	201838	2519142000	8.012E-05
0.02	0.0082	33.63	600,319	319913	2519142000	1.270E-04
0.03	0.0082	33.63	600,319	507017	2519142000	2.013E-04
0.04	0.0082	33.63	600,319	803517	2519142000	3.190E-04
0.06	0.0082	33.63	600,319	1273598	2519142000	5.056E-04
0.10	0.0082	33.63	600,319	2018381	2519142000	8.012E-04
0.16	0.0082	33.63	600,319	3199133	2519142000	1.270E-03
0.25	0.0082	33.63	600,319	5070172	2519142000	2.013E-03
0.40	0.0082	33.63	600,319	8035173	2519142000	3.190E-03
0.63	0.0082	33.63	600,319	12735981	2519142000	5.056E-03
1.00	0.0082	33.63	600,319	20183805	2519142000	8.012E-03
1.59	0.0082	33.63	600,319	31991331	2519142000	1.270E-02
2.51	0.0082	33.63	600,319	50701719	2519142000	2.013E-02
3.98	0.0082	33.63	600,319	80351729	2519142000	3.190E-02
6.31	0.0082	33.63	600,319	127359812	2519142000	5.056E-02
10.00	0.0082	33.63	600,319	201838054	2519142000	8.012E-02
15.85	0.0082	33.63	600,319	319913315	2519142000	1.270E-01
25.12	0.0082	33.63	600,319	507017190	2519142000	2.013E-01
39.82	0.0082	33.63	600,319	803719129	2519142000	3.190E-01
63.10	0.0082	33.63	600,319	1273598118	2519142000	5.056E-01
100	0.0082	33.63	600,319	2018380535	2519142000	8.012E-01

(iv) PEO 4 g/dL – HTAC 6 g/dL (c_s/c_p = 1.5) in water at 40°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.10	3.54	25.1	126.7
0.16	7.18	41.7	133.5
0.25	13.1	65.2	132.4
0.40	23.2	99.0	127.7
0.63	40.2	148.0	121.5
1.00	68.0	217.0	113.7
1.59	111.4	311.0	104.2
2.51	180.8	352.4	94.40
3.98	284	439.4	84.33
6.31	436	651.8	73.99
10.00	656	669	64.13
15.85	962	1013	54.72
25.12	1248	1418	45.88
39.81	1496	1458	37.94
63.10	1792	1822	30.94
100	2300	2564	24.86

G' (dyne/cm^2)	M (g/mol)	C (g/mL)	T (K)	G'M	cRT	G' M/cRT
3.54	600,319	0.1	313	2125129	2602282000	8.166E-04
7.18	600,319	0.1	313	4310290	2602282000	1.656E-03
13.1	600,319	0.1	313	7864179	2602282000	3.022E-03
23.2	600,319	0.1	313	13927401	2602282000	5.352E-03
40.2	600,319	0.1	313	24132824	2602282000	9.274E-03
68.0	600,319	0.1	313	40821692	2602282000	1.569E-02
111	600,319	0.1	313	66875537	2602282000	2.570E-02
180	600,319	0.1	313	108537675	2602282000	4.171E-02
284	600,319	0.1	313	170490596	2602282000	6.552E-02
436	600,319	0.1	313	261739084	2602282000	1.006E-01
656	600,319	0.1	313	393809264	2602282000	1.513E-01
962	600,319	0.1	313	577506878	2602282000	2.219E-01
1248	600,319	0.1	313	749198112	2602282000	2.879E-01
1496	600,319	0.1	313	898077224	2602282000	3.451E-01
1792	600,319	0.1	313	1075771648	2602282000	4.134E-01
2300	600,319	0.1	313	1380733700	2602282000	5.306E-01

G'' (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	$(G'' - \omega\eta_s)M$	cRT	$(G'' - \omega\eta_s)M/cRT$
25.1	0.10	0.0068	600,319	0.1	313	15067599	2602282000	0.005790
41.7	0.16	0.0068	600,319	0.1	313	25032655	2602282000	0.009620
65.2	0.25	0.0068	600,319	0.1	313	39139773	2602282000	0.015041
99.0	0.40	0.0068	600,319	0.1	313	59429956	2602282000	0.022838
148.0	0.63	0.0068	600,319	0.1	313	88844636	2602282000	0.034141
217.0	1.00	0.0068	600,319	0.1	313	130265141	2602282000	0.050058
311.0	1.59	0.0068	600,319	0.1	313	186692739	2602282000	0.071742
352.4	2.51	0.0068	600,319	0.1	313	211542161	2602282000	0.081291
439.4	3.98	0.0068	600,319	0.1	313	263763917	2602282000	0.101359
651.8	6.31	0.0068	600,319	0.1	313	391262166	2602282000	0.150353
669.0	10.00	0.0068	600,319	0.1	313	401572589	2602282000	0.154316
1013	15.85	0.0068	600,319	0.1	313	608058445	2602282000	0.233664
1418	25.12	0.0068	600,319	0.1	313	851149798	2602282000	0.327078
1458	39.81	0.0068	600,319	0.1	313	875102591	2602282000	0.336283
1822	63.10	0.0068	600,319	0.1	313	1093523633	2602282000	0.420217
2564	100	0.0068	600,319	0.1	313	1538809699	2602282000	0.591331

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.10	0.0068	119.4	600,319	7167400.64	2602282000	2.754E-03
0.16	0.0068	119.4	600,319	11360330.02	2602282000	4.366E-03
0.25	0.0068	119.4	600,319	18004510.4	2602282000	6.919E-03
0.40	0.0068	119.4	600,319	28533422.0	2602282000	1.096E-02
0.63	0.0068	119.4	600,319	45226298	2602282000	1.738E-02
1.00	0.0068	119.4	600,319	71674006	2602282000	2.754E-02
1.59	0.0068	119.4	600,319	113603300	2602282000	4.366E-02
2.51	0.0068	119.4	600,319	180045104	2602282000	6.919E-02
3.98	0.0068	119.4	600,319	285334220	2602282000	1.096E-01
6.31	0.0068	119.4	600,319	452262981	2602282000	1.738E-01
10.00	0.0068	119.4	600,319	716740064	2602282000	2.754E-01
15.85	0.0068	119.4	600,319	1136033002	2602282000	4.366E-01
25.12	0.0068	119.4	600,319	1800451042	2602282000	6.919E-01
39.81	0.0068	119.4	600,319	2853342196	2602282000	1.096E+00
63.10	0.0068	119.4	600,319	4522629806	2602282000	1.738E+00
100	0.0068	119.4	600,319	7167400643	2602282000	2.754E+00

(v) PEO 4 g/dL – HTAC 6 g/dL (c_s/c_p = 1.5) in water at 50°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.10	67.26	106.3	1258
0.16	89.43	127.7	983.6
0.25	116.8	156.5	777.3
0.40	149.2	191.5	609.8
0.63	188.5	234.8	477.2
1.00	236.6	287.8	372.6
1.59	297.2	352.7	291.0
2.51	374.2	433.8	228.0
3.98	469.7	533.9	178.6
6.31	594.2	653.5	140.0
10.00	753.4	800.4	109.9
15.85	953.4	973.2	85.95
25.12	1203	1175	66.93
39.81	1519	1409	52.04
63.10	1920	1670	40.32
100	2424	1951	31.11

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
67.26	600,319	0.1	313	40377456	2602282000	1.552E-02
89.43	600,319	0.1	313	53686528	2602282000	2.063E-02
116.8	600,319	0.1	313	70117259	2602282000	2.694E-02
149.2	600,319	0.1	313	89567595	2602282000	3.442E-02
188.5	600,319	0.1	313	113160132	2602282000	4.348E-02
236.6	600,319	0.1	313	142035475	2602282000	5.458E-02
297.2	600,319	0.1	313	178414807	2602282000	6.856E-02
374.2	600,319	0.1	313	224639370	2602282000	8.632E-02
469.7	600,319	0.1	313	281969834	2602282000	1.084E-01
594.2	600,319	0.1	313	356709550	2602282000	1.371E-01
753.4	600,319	0.1	313	452280335	2602282000	1.738E-01
953.4	600,319	0.1	313	572344135	2602282000	2.199E-01
1203	600,319	0.1	313	722183757	2602282000	2.775E-01
1519	600,319	0.1	313	911884561	2602282000	3.504E-01
1920	600,319	0.1	313	1152612480	2602282000	4.429E-01
2424	600,319	0.1	313	1455173256	2602282000	5.592E-01

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη_s)M	cRT	(G" - ωη_s)M/cRT
106.3	0.10	0.0068	600,319	0.1	313	63813501	2602282000	0.024522
127.7	0.16	0.0068	600,319	0.1	313	76660089	2602282000	0.029459
156.5	0.25	0.0068	600,319	0.1	313	93948898	2602282000	0.036103
191.5	0.40	0.0068	600,319	0.1	313	114959463	2602282000	0.044176
234.8	0.63	0.0068	600,319	0.1	313	140952325	2602282000	0.054165
287.8	1.00	0.0068	600,319	0.1	313	172767726	2602282000	0.066391
352.7	1.59	0.0068	600,319	0.1	313	211726041	2602282000	0.081362
433.8	2.51	0.0068	600,319	0.1	313	260408128	2602282000	0.100069
533.9	3.98	0.0068	600,319	0.1	313	320494063	2602282000	0.123159
653.5	6.31	0.0068	600,319	0.1	313	392282708	2602282000	0.150746
800.4	10.00	0.0068	600,319	0.1	313	480454506	2602282000	0.184628
973.2	15.85	0.0068	600,319	0.1	313	584165748	2602282000	0.224482
1175	25.12	0.0068	600,319	0.1	313	705272281	2602282000	0.271021
1409	39.81	0.0068	600,319	0.1	313	845686960	2602282000	0.324979
1670	63.10	0.0068	600,319	0.1	313	1002275145	2602282000	0.385152
1951	100	0.0068	600,319	0.1	313	1170814152	2602282000	0.449918

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	w(η_0 - η_s)M	cRT	ω(η_0-η_s)M/cRT
0.10	0.0068	173.3	600,319	10403120.05	2602282000	3.998E-03
0.16	0.0068	173.3	600,319	16488945.28	2602282000	6.336E-03
0.25	0.0068	173.3	600,319	26132637.6	2602282000	1.004E-02
0.40	0.0068	173.3	600,319	41414820.9	2602282000	1.591E-02
0.63	0.0068	173.3	600,319	65643688	2602282000	2.523E-02
1.00	0.0068	173.3	600,319	104031201	2602282000	3.998E-02
1.59	0.0068	173.3	600,319	164889453	2602282000	6.336E-02
2.51	0.0068	173.3	600,319	261326376	2602282000	1.004E-01
3.98	0.0068	173.3	600,319	414148209	2602282000	1.591E-01
6.31	0.0068	173.3	600,319	656436875	2602282000	2.523E-01
10.00	0.0068	173.3	600,319	1040312005	2602282000	3.998E-01
15.85	0.0068	173.3	600,319	1648894528	2602282000	6.336E-01
25.12	0.0068	173.3	600,319	2613263757	2602282000	1.004E+00
39.81	0.0068	173.3	600,319	4141482093	2602282000	1.591E+00
63.10	0.0068	173.3	600,319	6564368753	2602282000	2.523E+00
100	0.0068	173.3	600,319	10403120053	2602282000	3.998E+00

6.1.2 PEO 4 g/dL-HTAC 8 g/dL in water

(i) PEO 4 g/dL – HTAC 8 g/dL (c_s/c_p = 2.0) in water at 10°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.10	0.43	1.83	15.76
0.16	0.55	2.68	15.23
0.25	0.68	3.72	15.06
0.40	0.91	5.61	14.27
0.63	1.03	8.32	13.79
1.00	1.61	12.91	13.01
1.59	2.58	19.69	12.53
2.51	4.47	30.07	12.10
3.98	8.28	45.54	11.63
6.31	15.50	67.72	11.01
10.00	28.26	98.83	10.28
15.85	49.08	141.40	9.44
25.12	82.07	197.90	8.53
39.81	132.20	270.50	7.56
63.10	205.40	361.50	6.59
100.00	306.70	473.10	5.64

Figure is shown in Section 4.6.1.

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G'$_R$ = G' M/cRT
0.43	600,319	0.12	283	258077	2823434400	9.141E-05
0.55	600,319	0.12	283	328254	2823434400	1.163E-04
0.68	600,319	0.12	283	405335	2823434400	1.436E-04
0.91	600,319	0.12	283	543649	2823434400	1.925E-04
1.03	600,319	0.12	283	620730	2823434400	2.198E-04
1.61	600,319	0.12	283	966514	2823434400	3.423E-04
2.58	600,319	0.12	283	1548223	2823434400	5.483E-04
4.47	600,319	0.12	283	2682225	2823434400	9.500E-04
8.28	600,319	0.12	283	4969441	2823434400	1.760E-03
15.50	600,319	0.12	283	9304945	2823434400	3.296E-03
28.26	600,319	0.12	283	16965015	2823434400	6.009E-03
49.08	600,319	0.12	283	29463657	2823434400	1.044E-02
82.07	600,319	0.12	283	49268180	2823434400	1.745E-02
132.20	600,319	0.12	283	79362172	2823434400	2.811E-02
205.40	600,319	0.12	283	123305523	2823434400	4.367E-02
306.70	600,319	0.12	283	184117837	2823434400	6.521E-02

G" (dyne/cm²)	ω (rad/s)	ηs (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωηs)M	cRT	(G" - ωηs)M/cRT
1.83	0.10	0.0115	600,319	0.12	283	1095492	2823434400	0.000388
2.68	0.16	0.0115	600,319	0.12	283	1605359	2823434400	0.000569
3.72	0.25	0.0115	600,319	0.12	283	2233253	2823434400	0.000791
5.61	0.40	0.0115	600,319	0.12	283	3363841	2823434400	0.001191
8.32	0.63	0.0115	600,319	0.12	283	4990898	2823434400	0.001768
12.91	1.00	0.0115	600,319	0.12	283	7743215	2823434400	0.002742
19.69	1.59	0.0115	600,319	0.12	283	11809339	2823434400	0.004183
30.07	2.51	0.0115	600,319	0.12	283	18034250	2823434400	0.006387
45.54	3.98	0.0115	600,319	0.12	283	27311044	2823434400	0.009673
67.72	6.31	0.0115	600,319	0.12	283	40610041	2823434400	0.014383
98.83	10.00	0.0115	600,319	0.12	283	59260490	2823434400	0.020989
141.40	15.85	0.0115	600,319	0.12	283	84775683	2823434400	0.030026
197.90	25.12	0.0115	600,319	0.12	283	118629710	2823434400	0.042016
270.50	39.81	0.0115	600,319	0.12	283	162111454	2823434400	0.057416
361.50	63.10	0.0115	600,319	0.12	283	216579697	2823434400	0.076708
473.10	100.00	0.0115	600,319	0.12	283	283320552	2823434400	0.100346

ω (rad/s)	ηs (poise)	η0 (poise)	M (g/mol)	ω(η0 - ηs)M	cRT	ω(η0-ηs)M/cRT
0.10	0.0115	10.65	600,319	638649	2823434400	2.262E-04
0.16	0.0115	10.65	600,319	1012259	2823434400	3.585E-04
0.25	0.0115	10.65	600,319	1604287	2823434400	5.682E-04
0.40	0.0115	10.65	600,319	2542463	2823434400	9.005E-04
0.63	0.0115	10.65	600,319	4029878	2823434400	1.427E-03
1.00	0.0115	10.65	600,319	6386494	2823434400	2.262E-03
1.59	0.0115	10.65	600,319	10122592	2823434400	3.585E-03
2.51	0.0115	10.65	600,319	16042872	2823434400	5.682E-03
3.98	0.0115	10.65	600,319	25424631	2823434400	9.005E-03
6.31	0.0115	10.65	600,319	40298775	2823434400	1.427E-02
10.00	0.0115	10.65	600,319	63864937	2823434400	2.262E-02
15.85	0.0115	10.65	600,319	101225925	2823434400	3.585E-02
25.12	0.0115	10.65	600,319	160428721	2823434400	5.682E-02
39.81	0.0115	10.65	600,319	254246313	2823434400	9.005E-02
63.10	0.0115	10.65	600,319	402987751	2823434400	1.427E-01
100.00	0.0115	10.65	600,319	638649368	2823434400	2.262E-01

(ii) PEO 4 g/dL – HTAC 8 g/dL (c_s/c_p = 2.0) in water at 20°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.10	0.81	1.44	11.50
0.16	0.80	2.04	11.33
0.25	0.75	2.80	11.14
0.40	0.69	3.93	10.52
0.63	0.83	5.98	10.22
1.00	1.08	8.96	9.93
1.59	1.58	13.59	9.23
2.51	2.51	20.95	8.80
3.98	4.55	31.93	8.40
6.31	8.66	48.30	7.78
10.00	16.45	72.33	7.42
15.85	29.76	105.70	6.93
25.12	52.38	151.60	6.39
39.81	88.30	212.60	5.78
63.10	143.20	291.60	5.15
100.00	221.60	389.60	4.48

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.81	600,319	0.12	293	484878	2923202400	1.659E-04
0.80	600,319	0.12	293	480555	2923202400	1.644E-04
0.75	600,319	0.12	293	451980	2923202400	1.546E-04
0.69	600,319	0.12	293	416982	2923202400	1.426E-04
0.83	600,319	0.12	293	496824	2923202400	1.700E-04
1.08	600,319	0.12	293	649545	2923202400	2.222E-04
1.58	600,319	0.12	293	946703	2923202400	3.239E-04
2.51	600,319	0.12	293	1503799	2923202400	5.144E-04
4.55	600,319	0.12	293	2733853	2923202400	9.352E-04
8.66	600,319	0.12	293	5199363	2923202400	1.779E-03
16.45	600,319	0.12	293	9875248	2923202400	3.378E-03
29.76	600,319	0.12	293	17865493	2923202400	6.112E-03
52.38	600,319	0.12	293	31444709	2923202400	1.076E-02
88.30	600,319	0.12	293	53008168	2923202400	1.813E-02
143.20	600,319	0.12	293	85965681	2923202400	2.941E-02
221.60	600,319	0.12	293	133030690	2923202400	4.551E-02

G" (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη_s)M	cRT	(G" - ωη_s)M/cRT
1.44	0.10	0.01	600,319	0.12	293	863259	2923202400	0.000295
2.04	0.16	0.01	600,319	0.12	293	1224300	2923202400	0.000419
2.80	0.25	0.01	600,319	0.12	293	1679986	2923202400	0.000575
3.93	0.40	0.01	600,319	0.12	293	2355663	2923202400	0.000806
5.98	0.63	0.01	600,319	0.12	293	3583118	2923202400	0.001226
8.96	1.00	0.01	600,319	0.12	293	5375256	2923202400	0.001839
13.59	1.59	0.01	600,319	0.12	293	8148820	2923202400	0.002788
20.95	2.51	0.01	600,319	0.12	293	12561603	2923202400	0.004297
31.93	3.98	0.01	600,319	0.12	293	19144287	2923202400	0.006549
48.30	6.31	0.01	600,319	0.12	293	28957528	2923202400	0.009906
72.33	10.00	0.01	600,319	0.12	293	43361041	2923202400	0.014833
105.70	15.85	0.01	600,319	0.12	293	63358568	2923202400	0.021674
151.60	25.12	0.01	600,319	0.12	293	90857560	2923202400	0.031082
212.60	39.81	0.01	600,319	0.12	293	127388832	2923202400	0.043579
291.60	63.10	0.01	600,319	0.12	293	174674219	2923202400	0.059754
389.60	100.00	0.01	600,319	0.12	293	233283963	2923202400	0.079804

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η_0 - η_s)M	cRT	ω(η_0-η_s)M/cRT
0.10	0.01	7.45	600,319	446637	2923202400	1.528E-04
0.16	0.01	7.45	600,319	707920	2923202400	2.422E-04
0.25	0.01	7.45	600,319	1121953	2923202400	3.838E-04
0.40	0.01	7.45	600,319	1778063	2923202400	6.083E-04
0.63	0.01	7.45	600,319	2818282	2923202400	9.641E-04
1.00	0.01	7.45	600,319	4466373	2923202400	1.528E-03
1.59	0.01	7.45	600,319	7079202	2923202400	2.422E-03
2.51	0.01	7.45	600,319	11219530	2923202400	3.838E-03
3.98	0.01	7.45	600,319	17780632	2923202400	6.083E-03
6.31	0.01	7.45	600,319	28182816	2923202400	9.641E-03
10.00	0.01	7.45	600,319	44663734	2923202400	1.528E-02
15.85	0.01	7.45	600,319	70792018	2923202400	2.422E-02
25.12	0.01	7.45	600,319	112195299	2923202400	3.838E-02
39.81	0.01	7.45	600,319	177806323	2923202400	6.083E-02
63.10	0.01	7.45	600,319	281828159	2923202400	9.641E-02
100.00	0.01	7.45	600,319	446637336	2923202400	1.528E-01

(iii) PEO 4 g/dL – HTAC 8 g/dL ($c_s/c_p = 2.0$) in water at 30°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G'' (dyne/cm^2)	η^* (poise)
0.10	0.00	1.16	11.55
0.16	0.04	1.82	11.48
0.25	0.13	3.02	12.03
0.40	0.26	4.70	11.81
0.63	0.42	7.26	11.52
1.00	0.79	11.40	11.43
1.59	1.59	17.78	11.26
2.51	3.27	27.57	11.05
3.98	6.62	42.26	10.74
6.31	13.05	63.63	10.29
10.00	24.08	94.37	9.74
15.85	42.97	136.90	9.05
25.12	73.76	194.20	8.27
39.81	121.30	269.40	7.42
63.10	192.10	365.70	6.55
100.00	292.80	485.00	5.67

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.00	600,319	0.12	303	0	3022970400	0.000E+00
0.04	600,319	0.12	303	23869	3022970400	7.896E-06
0.13	600,319	0.12	303	75820	3022970400	2.508E-05
0.26	600,319	0.12	303	155663	3022970400	5.149E-05
0.42	600,319	0.12	303	251474	3022970400	8.319E-05
0.79	600,319	0.12	303	472871	3022970400	1.564E-04
1.59	600,319	0.12	303	952106	3022970400	3.150E-04
3.27	600,319	0.12	303	1963043	3022970400	6.494E-04
6.62	600,319	0.12	303	3975312	3022970400	1.315E-03
13.05	600,319	0.12	303	7834163	3022970400	2.592E-03
24.08	600,319	0.12	303	14455682	3022970400	4.782E-03
42.97	600,319	0.12	303	25795707	3022970400	8.533E-03
73.76	600,319	0.12	303	44279529	3022970400	1.465E-02
121.30	600,319	0.12	303	72818695	3022970400	2.409E-02
192.10	600,319	0.12	303	115321280	3022970400	3.815E-02
292.80	600,319	0.12	303	175773403	3022970400	5.815E-02

G" (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη_s)M	cRT	(G" - ωη_s)M/cRT
1.16	0.01	0.0082	600,319	0.12	303	693319	3022970400	0.000229
1.82	0.02	0.0082	600,319	0.12	303	1092503	3022970400	0.000361
3.02	0.03	0.0082	600,319	0.12	303	1811639	3022970400	0.000599
4.70	0.04	0.0082	600,319	0.12	303	2818302	3022970400	0.000932
7.26	0.06	0.0082	600,319	0.12	303	4355604	3022970400	0.001441
11.40	0.10	0.0082	600,319	0.12	303	6843144	3022970400	0.002264
17.78	0.16	0.0082	600,319	0.12	303	10672892	3022970400	0.003531
27.57	0.25	0.0082	600,319	0.12	303	16549558	3022970400	0.005475
42.26	0.40	0.0082	600,319	0.12	303	25367521	3022970400	0.008392
63.63	0.63	0.0082	600,319	0.12	303	38195192	3022970400	0.012635
94.37	1.00	0.0082	600,319	0.12	303	56647181	3022970400	0.018739
136.90	1.59	0.0082	600,319	0.12	303	82175869	3022970400	0.027184
194.20	2.51	0.0082	600,319	0.12	303	116569584	3022970400	0.038561
269.40	3.98	0.0082	600,319	0.12	303	161706342	3022970400	0.053493
365.70	6.31	0.0082	600,319	0.12	303	219505597	3022970400	0.072613
485.00	10.00	0.0082	600,319	0.12	303	291105489	3022970400	0.096298

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η_0 - η_s)M	cRT	ω(η_0-η_s)M/cRT
0.10	0.0082	9.9	600,319	593824	3022970400	1.964E-04
0.16	0.0082	9.9	600,319	941210	3022970400	3.114E-04
0.25	0.0082	9.9	600,319	1491685	3022970400	4.935E-04
0.40	0.0082	9.9	600,319	2364012	3022970400	7.820E-04
0.63	0.0082	9.9	600,319	3747027	3022970400	1.240E-03
1.00	0.0082	9.9	600,319	5938235	3022970400	1.964E-03
1.59	0.0082	9.9	600,319	9412103	3022970400	3.114E-03
2.51	0.0082	9.9	600,319	14916848	3022970400	4.935E-03
3.98	0.0082	9.9	600,319	23640115	3022970400	7.820E-03
6.31	0.0082	9.9	600,319	37470266	3022970400	1.240E-02
10.00	0.0082	9.9	600,319	59382355	3022970400	1.964E-02
15.85	0.0082	9.9	600,319	94121032	2519142000	3.736E-02
25.12	0.0082	9.9	600,319	149168475	2519142000	5.921E-02
39.82	0.0082	9.9	600,319	236460537	2519142000	9.387E-02
63.10	0.0082	9.9	600,319	374702659	2519142000	1.487E-01
100.00	0.0082	9.9	600,319	593823548	2519142000	2.357E-01

(iv) PEO 4 g/dL – HTAC 8 g/dL (c_s/c_p = 2.0) in water at 40°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.10	1.06	2.16	21.63
0.16	1.27	3.57	22.61
0.25	1.38	5.80	23.14
0.40	1.80	9.01	22.73
0.63	2.64	14.09	22.48
1.00	4.24	21.73	21.97
1.59	6.89	33.06	21.18
2.51	11.82	49.27	20.08
3.98	28.99	72.98	18.94
6.31	44.20	106.3	17.65
10.00	65.82	151.6	16.15
15.85	100.56	211.9	14.54
25.12	152.80	290.8	12.90
39.81	229.40	390.7	11.25
63.10	337.50	514.8	9.67
100.00	486.60	665.8	8.19

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
1.06	600,319	0.12	313	636338	3122738400	2.038E-04
1.27	600,319	0.12	313	762405	3122738400	2.441E-04
1.38	600,319	0.12	313	828440	3122738400	2.653E-04
1.80	600,319	0.12	313	1080574	3122738400	3.460E-04
2.64	600,319	0.12	313	1584842	3122738400	5.075E-04
4.24	600,319	0.12	313	2545353	3122738400	8.151E-04
6.89	600,319	0.12	313	4136198	3122738400	1.325E-03
11.82	600,319	0.12	313	7095771	3122738400	2.272E-03
28.99	600,319	0.12	313	17403248	3122738400	5.573E-03
44.20	600,319	0.12	313	26534100	3122738400	8.497E-03
65.82	600,319	0.12	313	39512997	3122738400	1.265E-02
100.56	600,319	0.12	313	60368079	3122738400	1.933E-02
152.80	600,319	0.12	313	91728743	3122738400	2.937E-02
229.40	600,319	0.12	313	137713179	3122738400	4.410E-02
337.50	600,319	0.12	313	202607663	3122738400	6.488E-02
486.40	600,319	0.12	313	291995162	3122738400	9.351E-02

G'' (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G'' - ωη_s)M	cRT	(G'' - ωη_s)M/cRT
2.16	0.10	0.0068	600,319	0.12	313	1298082	3122738400	0.000416
3.57	0.16	0.0068	600,319	0.12	313	2144893	3122738400	0.000687
5.80	0.25	0.0068	600,319	0.12	313	3481425	3122738400	0.001115
9.01	0.40	0.0068	600,319	0.12	313	5409650	3122738400	0.001732
14.09	0.63	0.0068	600,319	0.12	313	8455919	3122738400	0.002708
21.73	1.00	0.0068	600,319	0.12	313	13040850	3122738400	0.004176
33.06	1.59	0.0068	600,319	0.12	313	19840076	3122738400	0.006353
49.27	2.51	0.0068	600,319	0.12	313	29567463	3122738400	0.009468
72.98	3.98	0.0068	600,319	0.12	313	43795030	3122738400	0.014025
106.30	6.31	0.0068	600,319	0.12	313	63788151	3122738400	0.020427
151.60	10.00	0.0068	600,319	0.12	313	90967539	3122738400	0.029131
211.90	15.85	0.0068	600,319	0.12	313	127142894	3122738400	0.040715
290.80	25.12	0.0068	600,319	0.12	313	174470221	3122738400	0.055871
390.70	39.81	0.0068	600,319	0.12	313	234382122	3122738400	0.075057
514.80	63.10	0.0068	600,319	0.12	313	308786636	3122738400	0.098883
665.80	100.00	0.0068	600,319	0.12	313	399284173	3122738400	0.127863

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η_0 - η_s)M	cRT	ω(η_0-η_s)M/cRT
0.10	0.0068	32.68	600,319	1961434	3122738400	6.281E-04
0.16	0.0068	32.68	600,319	3108873	3122738400	9.956E-04
0.25	0.0068	32.68	600,319	4927123	3122738400	1.578E-03
0.40	0.0068	32.68	600,319	7808470	3122738400	2.501E-03
0.63	0.0068	32.68	600,319	12376650	3122738400	3.963E-03
1.00	0.0068	32.68	600,319	19614343	3122738400	6.281E-03
1.59	0.0068	32.68	600,319	31088733	3122738400	9.956E-03
2.51	0.0068	32.68	600,319	49271229	3122738400	1.578E-02
3.98	0.0068	32.68	600,319	78084698	3122738400	2.501E-02
6.31	0.0068	32.68	600,319	123766503	3122738400	3.963E-02
10.00	0.0068	32.68	600,319	196143428	3122738400	6.281E-02
15.85	0.0068	32.68	600,319	310887333	3122738400	9.956E-02
25.12	0.0068	32.68	600,319	492712290	3122738400	1.578E-01
39.81	0.0068	32.68	600,319	780846985	3122738400	2.501E-01
63.10	0.0068	32.68	600,319	1237665028	3122738400	3.963E-01
100.00	0.0068	32.68	600,319	1961434275	3122738400	6.281E-01

(v) PEO 4 g/dL – HTAC 8 g/dL (c_s/c_p = 2.0) in water at 50°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η^* (poise)
0.10	1.08	5.82	59.17
0.16	2.95	10.60	69.42
0.25	5.63	16.89	70.87
0.40	9.66	26.19	70.11
0.63	15.53	38.42	65.67
1.00	24.12	54.69	59.78
1.59	37.09	76.71	53.76
2.51	55.07	106.1	47.58
3.98	80.86	144.7	41.63
6.31	117.50	194.9	36.06
10.00	167.90	259.0	30.87
15.85	238.90	340.9	26.26
25.12	333.50	442.0	22.04
39.81	460.00	564.7	18.30
63.10	624.60	710.8	15.00
100.00	841.20	886.0	12.22

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G'M/cRT
1.08	600,319	0.12	323	649545	3222506400	2.016E-04
2.95	600,319	0.12	323	1773342	3222506400	5.503E-04
5.63	600,319	0.12	323	3380997	3222506400	1.049E-03
9.66	600,319	0.12	323	5796680	3222506400	1.799E-03
15.53	600,319	0.12	323	9322954	3222506400	2.893E-03
24.12	600,319	0.12	323	14479694	3222506400	4.493E-03
37.09	600,319	0.12	323	22265832	3222506400	6.909E-03
55.07	600,319	0.12	323	33059567	3222506400	1.026E-02
80.86	600,319	0.12	323	48541794	3222506400	1.506E-02
117.50	600,319	0.12	323	70537483	3222506400	2.189E-02
167.90	600,319	0.12	323	100793560	3222506400	3.128E-02
238.90	600,319	0.12	323	143416209	3222506400	4.450E-02
333.50	600,319	0.12	323	200206387	3222506400	6.213E-02
460.00	600,319	0.12	323	276146740	3222506400	8.569E-02
624.60	600,319	0.12	323	374959247	3222506400	1.164E-01
841.20	600,319	0.12	323	504988343	3222506400	1.567E-01

G'' (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	$(G'' - \omega\eta_s)M$	cRT	$(G'' - \omega\eta_s)M/cRT$
5.82	0.10	0.0057	600,319	0.12	323	3492314	3222506400	0.001084
10.60	0.16	0.0057	600,319	0.12	323	6362839	3222506400	0.001975
16.89	0.25	0.0057	600,319	0.12	323	10138528	3222506400	0.003146
26.19	0.40	0.0057	600,319	0.12	323	15720992	3222506400	0.004878
38.42	0.63	0.0057	600,319	0.12	323	23062097	3222506400	0.007157
54.69	1.00	0.0057	600,319	0.12	323	32828024	3222506400	0.010187
76.71	1.59	0.0057	600,319	0.12	323	46045047	3222506400	0.014289
106.10	2.51	0.0057	600,319	0.12	323	63685250	3222506400	0.019763
144.70	3.98	0.0057	600,319	0.12	323	86852537	3222506400	0.026952
194.90	6.31	0.0057	600,319	0.12	323	116980581	3222506400	0.036301
259.00	10.00	0.0057	600,319	0.12	323	155448403	3222506400	0.048238
340.90	15.85	0.0057	600,319	0.12	323	204594511	3222506400	0.063489
442.00	25.12	0.0057	600,319	0.12	323	265255042	3222506400	0.082313
564.70	39.81	0.0057	600,319	0.12	323	338863917	3222506400	0.105155
710.80	63.10	0.0057	600,319	0.12	323	426490828	3222506400	0.132348
886.00	100.00	0.0057	600,319	0.12	323	531540452	3222506400	0.164946

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.10	0.0057	64.17	600,319	3851905	3222506400	1.195E-03
0.16	0.0057	64.17	600,319	6105269	3222506400	1.895E-03
0.25	0.0057	64.17	600,319	9675985	3222506400	3.003E-03
0.40	0.0057	64.17	600,319	15334433	3222506400	4.759E-03
0.63	0.0057	64.17	600,319	24305520	3222506400	7.542E-03
1.00	0.0057	64.17	600,319	38519048	3222506400	1.195E-02
1.59	0.0057	64.17	600,319	61052692	3222506400	1.895E-02
2.51	0.0057	64.17	600,319	96759850	3222506400	3.003E-02
3.98	0.0057	64.17	600,319	153344332	3222506400	4.759E-02
6.31	0.0057	64.17	600,319	243055195	3222506400	7.542E-02
10.00	0.0057	64.17	600,319	385190484	3222506400	1.195E-01
15.85	0.0057	64.17	600,319	610526917	3222506400	1.895E-01
25.12	0.0057	64.17	600,319	967598496	3222506400	3.003E-01
39.81	0.0057	64.17	600,319	1533443317	3222506400	4.759E-01
63.10	0.0057	64.17	600,319	2430551955	3222506400	7.542E-01
100.00	0.0057	64.17	600,319	3851904841	3222506400	1.195E+00

6.1.4 PEO 8 g/dL-HTAC 8 g/dL in water

(i) PEO 8 g/dL – HTAC 8 g/dL (c_s/c_p = 1.0) in water at 10°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.01	0.4098	4.503	452.2
0.0159	0.4491	6.932	438.3
0.0251	0.7944	11.06	441.4
0.0398	1.410	17.24	434.6
0.0631	2.479	26.61	423.5
0.1	4.808	41.01	412.9
0.1585	9.244	62.76	400.2
0.2512	17.36	95.20	385.2
0.3981	32.44	141.7	365.1
0.6310	57.70	208.0	342.1
1	100.6	298.9	315.4
1.585	168.4	419.2	285.1
2.512	272.0	574.2	253.0
3.981	424.2	771.6	221.2
6.31	638.9	1007	189.0
10	933.1	1287	159.0
15.85	1317	1608	131.1
25.12	1815	1964	106.5
39.82	2448	2345	85.14
63.10	3240	2723	67.07
100	4951	3475	60.49

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.4098	600,319	0.16	283	2.46E+05	3764579200	6.53E-05
0.4491	600,319	0.16	283	2.70E+05	3764579200	7.16E-05
0.7944	600,319	0.16	283	4.77E+05	3764579200	1.27E-04
1.410	600,319	0.16	283	8.46E+05	3764579200	2.25E-04
2.479	600,319	0.16	283	1.49E+06	3764579200	3.95E-04
4.808	600,319	0.16	283	2.89E+06	3764579200	7.67E-04
9.244	600,319	0.16	283	5.55E+06	3764579200	1.47E-03
17.36	600,319	0.16	283	1.04E+07	3764579200	2.77E-03
32.44	600,319	0.16	283	1.95E+07	3764579200	5.17E-03
57.70	600,319	0.16	283	3.46E+07	3764579200	9.20E-03
100.6	600,319	0.16	283	6.04E+07	3764579200	1.60E-02
168.4	600,319	0.16	283	1.01E+08	3764579200	2.69E-02
272.0	600,319	0.16	283	1.63E+08	3764579200	4.34E-02
424.2	600,319	0.16	283	2.55E+08	3764579200	6.76E-02
638.9	600,319	0.16	283	3.84E+08	3764579200	1.02E-01
933.1	600,319	0.16	283	5.60E+08	3764579200	1.49E-01
1317	600,319	0.16	283	7.91E+08	3764579200	2.10E-01
1815	600,319	0.16	283	1.09E+09	3764579200	2.89E-01
2448	600,319	0.16	283	1.47E+09	3764579200	3.90E-01
3240	600,319	0.16	283	1.95E+09	3764579200	5.17E-01
4951	600,319	0.16	283	2.97E+09	3764579200	7.90E-01

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - $\omega\eta_s$)M	cRT	(G" - $\omega\eta_s$)M/cRT
4.503	0.01	0.0115	600,319	0.16	283	2703167	3764579200	0.000718
6.932	0.0159	0.0115	600,319	0.16	283	4161302	3764579200	0.001105
11.06	0.0251	0.0115	600,319	0.16	283	6639355	3764579200	0.001764
17.24	0.0398	0.0115	600,319	0.16	283	10349225	3764579200	0.002749
26.61	0.0631	0.0115	600,319	0.16	283	15974053	3764579200	0.004243
41.01	0.1	0.0115	600,319	0.16	283	24618392	3764579200	0.006539
62.76	0.1585	0.0115	600,319	0.16	283	37674926	3764579200	0.010008
95.2	0.2512	0.0115	600,319	0.16	283	57148635	3764579200	0.015181
141.7	0.3981	0.0115	600,319	0.16	283	85062454	3764579200	0.022595
208.0	0.6310	0.0115	600,319	0.16	283	124861996	3764579200	0.033168
298.9	1	0.0115	600,319	0.16	283	179428445	3764579200	0.047662
419.2	1.585	0.0115	600,319	0.16	283	251642782	3764579200	0.066845
574.2	2.512	0.0115	600,319	0.16	283	344685828	3764579200	0.091560
771.6	3.981	0.0115	600,319	0.16	283	463178657	3764579200	0.123036
1007	6.31	0.0115	600,319	0.16	283	604477671	3764579200	0.160570
1287	10	0.0115	600,319	0.16	283	772541516	3764579200	0.205213
1608	15.85	0.0115	600,319	0.16	283	965203529	3764579200	0.256391
1964	25.12	0.0115	600,319	0.16	283	1178853096	3764579200	0.313143
2345	39.82	0.0115	600,319	0.16	283	1407473151	3764579200	0.373873
2723	63.1	0.0115	600,319	0.16	283	1634233016	3764579200	0.434108
3475	100	0.0115	600,319	0.16	283	2085418158	3764579200	0.553958

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.0115	158.5	600,319	951437	3764579200	0.0002527
0.0159	0.0115	158.5	600,319	1508027	3764579200	0.0004006
0.0251	0.0115	158.5	600,319	2390009	3764579200	0.0006349
0.0398	0.0115	158.5	600,319	3787669	3764579200	0.0010061
0.0631	0.0115	158.5	600,319	6003565	3764579200	0.0015948
0.1	0.0115	158.5	600,319	9514366	3764579200	0.0025273
0.1585	0.0115	158.5	600,319	15080270	3764579200	0.0040058
0.2512	0.0115	158.5	600,319	23900087	3764579200	0.0063487
0.3981	0.0115	158.5	600,319	37876690	3764579200	0.0100613
0.6310	0.0115	158.5	600,319	60035648	3764579200	0.0159475
1	0.0115	158.5	600,319	95143658	3764579200	0.0252734
1.585	0.0115	158.5	600,319	150802698	3764579200	0.0400583
2.512	0.0115	158.5	600,319	239000868	3764579200	0.0634867
3.981	0.0115	158.5	600,319	378766902	3764579200	0.1006133
6.31	0.0115	158.5	600,319	600356481	3764579200	0.1594751
10	0.0115	158.5	600,319	951436578	3764579200	0.2527338
15.85	0.0115	158.5	600,319	1508026977	3764579200	0.40058315
25.12	0.0115	158.5	600,319	2390008685	3764579200	0.63486742
39.82	0.0115	158.5	600,319	3788620455	3764579200	1.00638617
63.1	0.0115	158.5	600,319	6003564809	3764579200	1.59475057
100	0.0115	158.5	600,319	9514365783	3764579200	2.52733846

(ii) PEO 8 g/dL – HTAC 8 g/dL (c_s/c_p = 1.0) in water at 20°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η^* (poise)
0.01	0.241	3.395	340.4
0.0159	0.3211	5.265	332.8
0.0251	0.6508	8.426	336.4
0.0398	0.8603	12.93	325.4
0.0631	1.535	20.11	319.6
0.1	2.903	31.31	314.4
0.1585	5.512	48.14	305.7
0.2512	10.93	73.89	297.4
0.3981	20.82	111.4	284.8
0.6310	38.91	165.8	269.9
1	70.76	242.7	252.8
1.585	121.4	346.1	231.4
2.512	202	483	208.4
3.981	323.7	659.4	184.5
6.31	500.8	877	160.1
10	750.3	1142	136.7
15.85	1085	1450	114.3
25.12	1528	1802	94.06
39.82	2102	2185	76.13
63.10	2824	2574	60.56
100	3699	2942	47.26

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.2410	600,319	0.16	293	1.45E+05	3897603200	3.71E-05
0.3211	600,319	0.16	293	1.93E+05	3897603200	4.95E-05
0.6508	600,319	0.16	293	3.91E+05	3897603200	1.00E-04
0.8603	600,319	0.16	293	5.16E+05	3897603200	1.33E-04
1.535	600,319	0.16	293	9.21E+05	3897603200	2.36E-04
2.903	600,319	0.16	293	1.74E+06	3897603200	4.47E-04
5.512	600,319	0.16	293	3.31E+06	3897603200	8.49E-04
10.93	600,319	0.16	293	6.56E+06	3897603200	1.68E-03
20.82	600,319	0.16	293	1.25E+07	3897603200	3.21E-03
38.91	600,319	0.16	293	2.34E+07	3897603200	5.99E-03
70.76	600,319	0.16	293	4.25E+07	3897603200	1.09E-02
121.4	600,319	0.16	293	7.29E+07	3897603200	1.87E-02
202.0	600,319	0.16	293	1.21E+08	3897603200	3.11E-02
323.7	600,319	0.16	293	1.94E+08	3897603200	4.99E-02
500.8	600,319	0.16	293	3.01E+08	3897603200	7.71E-02
750.3	600,319	0.16	293	4.50E+08	3897603200	1.16E-01
1085	600,319	0.16	293	6.51E+08	3897603200	1.67E-01
1528	600,319	0.16	293	9.17E+08	3897603200	2.35E-01
2102	600,319	0.16	293	1.26E+09	3897603200	3.24E-01
2824	600,319	0.16	293	1.70E+09	3897603200	4.35E-01
3699	600,319	0.16	293	2.22E+09	3897603200	5.70E-01

G" (dyne/cm^2)	ω (rad/s)	η$_s$ (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
3.395	0.01	0.01	600,319	0.16	293	2038023	3897603200	0.000523
5.265	0.0159	0.01	600,319	0.16	293	3160584	3897603200	0.000811
8.426	0.0251	0.01	600,319	0.16	293	5058137	3897603200	0.001298
12.93	0.0398	0.01	600,319	0.16	293	7761886	3897603200	0.001991
20.11	0.0631	0.01	600,319	0.16	293	12072036	3897603200	0.003097
31.31	0.1	0.01	600,319	0.16	293	18795388	3897603200	0.004822
48.14	0.1585	0.01	600,319	0.16	293	28898405	3897603200	0.007414
73.89	0.2512	0.01	600,319	0.16	293	44356063	3897603200	0.011380
111.4	0.3981	0.01	600,319	0.16	293	66873147	3897603200	0.017158
165.8	0.6310	0.01	600,319	0.16	293	99529102	3897603200	0.025536
242.7	1	0.01	600,319	0.16	293	145691418	3897603200	0.037380
346.1	1.585	0.01	600,319	0.16	293	207760891	3897603200	0.053305
483.0	2.512	0.01	600,319	0.16	293	289938997	3897603200	0.074389
659.4	3.981	0.01	600,319	0.16	293	395826450	3897603200	0.101556
877.0	6.31	0.01	600,319	0.16	293	526441883	3897603200	0.135068
1142	10	0.01	600,319	0.16	293	685504266	3897603200	0.175878
1450	15.85	0.01	600,319	0.16	293	870367399	3897603200	0.223308
1802	25.12	0.01	600,319	0.16	293	1081624038	3897603200	0.277510
2185	39.82	0.01	600,319	0.16	293	1311457968	3897603200	0.336478
2574	63.1	0.01	600,319	0.16	293	1544842305	3897603200	0.396357
2942	100	0.01	600,319	0.16	293	1765538179	3897603200	0.452980

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.01	137.6	600,319	825979	3897603200	0.00021192
0.0159	0.01	137.6	600,319	1309177	3897603200	0.000335893
0.0251	0.01	137.6	600,319	2074859	3897603200	0.000532342
0.0398	0.01	137.6	600,319	3288222	3897603200	0.000843652
0.0631	0.01	137.6	600,319	5211927	3897603200	0.001337213
0.1	0.01	137.6	600,319	8259789	3897603200	0.002119197
0.1585	0.01	137.6	600,319	13091766	3897603200	0.003358927
0.2512	0.01	137.6	600,319	20748590	3897603200	0.005323423
0.3981	0.01	137.6	600,319	32882220	3897603200	0.008436523
0.6310	0.01	137.6	600,319	52119269	3897603200	0.013372133
1	0.01	137.6	600,319	82597891	3897603200	0.021191970
1.585	0.01	137.6	600,319	130917658	3897603200	0.033589273
2.512	0.01	137.6	600,319	207485903	3897603200	0.053234229
3.981	0.01	137.6	600,319	328822205	3897603200	0.084365234
6.31	0.01	137.6	600,319	521192694	3897603200	0.133721333
10	0.01	137.6	600,319	825978912	3897603200	0.211919703
15.85	0.01	137.6	600,319	1309176576	3897603200	0.335892729
25.12	0.01	137.6	600,319	2074859027	3897603200	0.532342294
39.82	0.01	137.6	600,319	3289048028	3897603200	0.843864257
63.1	0.01	137.6	600,319	5211926935	3897603200	1.337213325
100	0.01	137.6	600,319	8259789121	3897603200	2.119197029

(iii) PEO 8 g/dL – HTAC 8 g/dL (c_s/c_p = 1.0) in water at 30°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.01	0.1378	3.105	310.8
0.01585	0.1975	5.501	347.3
0.02512	0.4443	8.969	357.5
0.03981	0.7634	14.23	358.0
0.0631	1.775	22.79	362.2
0.1	3.542	35.55	357.3
0.1585	7.370	55.11	350.8
0.2512	14.25	84.04	339.3
0.3981	26.12	126.7	325.0
0.631	47.68	188.2	307.6
1	83.65	273.3	285.8
1.585	142.8	388.3	261.0
2.512	232.6	542.0	234.8
3.981	370.3	738.9	207.6
6.31	569.5	982.9	180.0
10	844.9	1282	153.6
15.85	1221	1629	128.5
25.12	1720	2028	105.9
39.82	2368	2463	85.80
63.1	3190	2901	68.33
100	4187	3306	53.35

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.1378	600,319	0.16	303	8.27E+04	4030627200	2.05E-05
0.1975	600,319	0.16	303	1.19E+05	4030627200	2.94E-05
0.4443	600,319	0.16	303	2.67E+05	4030627200	6.62E-05
0.7634	600,319	0.16	303	4.58E+05	4030627200	1.14E-04
1.775	600,319	0.16	303	1.07E+06	4030627200	2.64E-04
3.542	600,319	0.16	303	2.13E+06	4030627200	5.28E-04
7.370	600,319	0.16	303	4.42E+06	4030627200	1.10E-03
14.25	600,319	0.16	303	8.55E+06	4030627200	2.12E-03
26.12	600,319	0.16	303	1.57E+07	4030627200	3.89E-03
47.68	600,319	0.16	303	2.86E+07	4030627200	7.10E-03
83.65	600,319	0.16	303	5.02E+07	4030627200	1.25E-02
142.8	600,319	0.16	303	8.57E+07	4030627200	2.13E-02
232.6	600,319	0.16	303	1.40E+08	4030627200	3.46E-02
370.3	600,319	0.16	303	2.22E+08	4030627200	5.52E-02
569.5	600,319	0.16	303	3.42E+08	4030627200	8.48E-02
844.9	600,319	0.16	303	5.07E+08	4030627200	1.26E-01
1221	600,319	0.16	303	7.33E+08	4030627200	1.82E-01
1720	600,319	0.16	303	1.03E+09	4030627200	2.56E-01
2368	600,319	0.16	303	1.42E+09	4030627200	3.53E-01
3190	600,319	0.16	303	1.92E+09	4030627200	4.75E-01
4187	600,319	0.16	303	2.51E+09	4030627200	6.24E-01

G" (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - $\omega\eta_s$)M	cRT	(G" - $\omega\eta_s$)M/cRT
3.105	0.01	0.0082	600,319	0.16	303	1863941	4030627200	0.000462
5.501	0.0159	0.0082	600,319	0.16	303	3302277	4030627200	0.000819
8.969	0.0251	0.0082	600,319	0.16	303	5384137	4030627200	0.001336
14.23	0.0398	0.0082	600,319	0.16	303	8542343	4030627200	0.002119
22.79	0.0631	0.0082	600,319	0.16	303	13680959	4030627200	0.003394
35.55	0.1	0.0082	600,319	0.16	303	21340848	4030627200	0.005295
55.11	0.1585	0.0082	600,319	0.16	303	33082800	4030627200	0.008208
84.04	0.2512	0.0082	600,319	0.16	303	50449572	4030627200	0.012517
126.7	0.3981	0.0082	600,319	0.16	303	76058458	4030627200	0.018870
188.2	0.6310	0.0082	600,319	0.16	303	112976930	4030627200	0.028030
273.3	1	0.0082	600,319	0.16	303	164062260	4030627200	0.040704
388.3	1.585	0.0082	600,319	0.16	303	233096065	4030627200	0.057831
542.0	2.512	0.0082	600,319	0.16	303	325360532	4030627200	0.080722
738.9	3.981	0.0082	600,319	0.16	303	443556112	4030627200	0.110046
982.9	6.31	0.0082	600,319	0.16	303	590022483	4030627200	0.146385
1282	10	0.0082	600,319	0.16	303	769559732	4030627200	0.190928
1629	15.85	0.0082	600,319	0.16	303	977841628	4030627200	0.242603
2028	25.12	0.0082	600,319	0.16	303	1217323276	4030627200	0.302018
2463	39.82	0.0082	600,319	0.16	303	1478389678	4030627200	0.366789
2901	63.1	0.0082	600,319	0.16	303	1741214802	4030627200	0.431996
3306	100	0.0082	600,319	0.16	303	1984162352	4030627200	0.492271

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.0082	134.6	600,319	807980.15	4030627200	0.00020046
0.01585	0.0082	134.6	600,319	1280648.53	4030627200	0.000317729
0.02512	0.0082	134.6	600,319	2029646.1	4030627200	0.000503556
0.03981	0.0082	134.6	600,319	3216569.0	4030627200	0.000798032
0.0631	0.0082	134.6	600,319	5098355	4030627200	0.001264904
0.1	0.0082	134.6	600,319	8079801	4030627200	0.002004602
0.1585	0.0082	134.6	600,319	12806485	4030627200	0.003177293
0.2512	0.0082	134.6	600,319	20296461	4030627200	0.005035559
0.3981	0.0082	134.6	600,319	32165690	4030627200	0.007980319
0.631	0.0082	134.6	600,319	50983547	4030627200	0.012649036
1	0.0082	134.6	600,319	80798015	4030627200	0.020046015
1.585	0.0082	134.6	600,319	128064853	4030627200	0.031772934
2.512	0.0082	134.6	600,319	202964613	4030627200	0.050355591
3.981	0.0082	134.6	600,319	321656897	4030627200	0.079803187
6.31	0.0082	134.6	600,319	509835473	4030627200	0.126490357
10	0.0082	134.6	600,319	807980148	4030627200	0.200460154
15.85	0.0082	134.6	600,319	1280648534	4030627200	0.317729344
25.12	0.0082	134.6	600,319	2029646131	4030627200	0.503555906
39.82	0.0082	134.6	600,319	3217376949	4030627200	0.798232332
63.1	0.0082	134.6	600,319	5098354733	4030627200	1.264903570
100	0.0082	134.6	600,319	8079801478	4030627200	2.004601537

(iv) PEO 8 g/dL – HTAC 8 g/dL (c_s/c_p = 1.0) in water at 40°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.01	1.542	9.741	986
0.0159	4.479	21.75	1401
0.0251	10.62	38.44	1587
0.0398	20.36	63.42	1673
0.0631	36.15	98.0	1655
0.1	60.04	145.4	1573
0.1585	95.31	207.7	1442
0.2512	145.4	289.7	1290
0.3981	217.1	395.0	1132
0.6310	316.3	532.7	982
1	459.4	706.2	843
1.585	646.1	918.5	709
2.512	904.5	1178	591
3.981	1237	1478	484
6.31	1676	1837	394
10	2226	2244	316
15.85	2919	2699	250.8
25.12	3783	3177	196.6
39.82	4844	3648	152.3
63.10	6119	4034	116.2
100	7511	4266	86.38

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
1.542	600,319	0.16	313	9.26E+05	4163651200	2.22E-04
4.479	600,319	0.16	313	2.69E+06	4163651200	6.46E-04
10.62	600,319	0.16	313	6.38E+06	4163651200	1.53E-03
20.36	600,319	0.16	313	1.22E+07	4163651200	2.94E-03
36.15	600,319	0.16	313	2.17E+07	4163651200	5.21E-03
60.04	600,319	0.16	313	3.60E+07	4163651200	8.66E-03
95.31	600,319	0.16	313	5.72E+07	4163651200	1.37E-02
145.4	600,319	0.16	313	8.73E+07	4163651200	2.10E-02
217.1	600,319	0.16	313	1.30E+08	4163651200	3.13E-02
316.3	600,319	0.16	313	1.90E+08	4163651200	4.56E-02
459.4	600,319	0.16	313	2.76E+08	4163651200	6.62E-02
646.1	600,319	0.16	313	3.88E+08	4163651200	9.32E-02
904.5	600,319	0.16	313	5.43E+08	4163651200	1.30E-01
1237	600,319	0.16	313	7.43E+08	4163651200	1.78E-01
1676	600,319	0.16	313	1.01E+09	4163651200	2.42E-01
2226	600,319	0.16	313	1.34E+09	4163651200	3.21E-01
2919	600,319	0.16	313	1.75E+09	4163651200	4.21E-01
3783	600,319	0.16	313	2.27E+09	4163651200	5.45E-01
4844	600,319	0.16	313	2.91E+09	4163651200	6.98E-01
6119	600,319	0.16	313	3.67E+09	4163651200	8.82E-01
7511	600,319	0.16	313	4.51E+09	4163651200	1.08E+00

G" (dyne/cm²)	ω (rad/s)	η$_s$ (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
9.741	0.01	0.0068	600,319	0.16	313	5847667	4163651200	0.001404
21.75	0.01585	0.0068	600,319	0.16	313	13056874	4163651200	0.003136
38.44	0.02512	0.0068	600,319	0.16	313	23076160	4163651200	0.005542
63.42	0.03981	0.0068	600,319	0.16	313	38072068	4163651200	0.009144
98.00	0.0631	0.0068	600,319	0.16	313	58831004	4163651200	0.014130
145.4	0.1	0.0068	600,319	0.16	313	87285974	4163651200	0.020964
207.7	0.1585	0.0068	600,319	0.16	313	124685609	4163651200	0.029946
289.7	0.2512	0.0068	600,319	0.16	313	173911389	4163651200	0.041769
395.0	0.3981	0.0068	600,319	0.16	313	237124380	4163651200	0.056951
532.7	0.631	0.0068	600,319	0.16	313	319787355	4163651200	0.076805
706.2	1	0.0068	600,319	0.16	313	423941196	4163651200	0.101820
918.5	1.585	0.0068	600,319	0.16	313	551386531	4163651200	0.132429
1178	2.512	0.0068	600,319	0.16	313	707165528	4163651200	0.169843
1478	3.981	0.0068	600,319	0.16	313	887255231	4163651200	0.213095
1837	6.31	0.0068	600,319	0.16	313	1102760245	4163651200	0.264854
2244	10	0.0068	600,319	0.16	313	1347075014	4163651200	0.323532
2699	15.85	0.0068	600,319	0.16	313	1620196279	4163651200	0.389129
3177	25.12	0.0068	600,319	0.16	313	1907110919	4163651200	0.458038
3648	39.82	0.0068	600,319	0.16	313	2189801160	4163651200	0.525933
4034	63.1	0.0068	600,319	0.16	313	2421429261	4163651200	0.581564
4266	100	0.0068	600,319	0.16	313	2560552637	4163651200	0.614978

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.0068	218.7	600,319	1312857	4163651200	0.000315314
0.01585	0.0068	218.7	600,319	2080878	4163651200	0.000499772
0.02512	0.0068	218.7	600,319	3297896	4163651200	0.000792068
0.03981	0.0068	218.7	600,319	5226483	4163651200	0.001255264
0.0631	0.0068	218.7	600,319	8284127	4163651200	0.001989630
0.1	0.0068	218.7	600,319	13128568	4163651200	0.003153138
0.1585	0.0068	218.7	600,319	20808781	4163651200	0.004997724
0.2512	0.0068	218.7	600,319	32978964	4163651200	0.007920684
0.3981	0.0068	218.7	600,319	52264830	4163651200	0.012552644
0.631	0.0068	218.7	600,319	82841266	4163651200	0.019896303
1	0.0068	218.7	600,319	131285683	4163651200	0.031531384
1.585	0.0068	218.7	600,319	208087808	4163651200	0.049977243
2.512	0.0068	218.7	600,319	329789636	4163651200	0.079206836
3.981	0.0068	218.7	600,319	522648305	4163651200	0.125526438
6.31	0.0068	218.7	600,319	828412661	4163651200	0.19896303
10	0.0068	218.7	600,319	1312856831	4163651200	0.315313836
15.85	0.0068	218.7	600,319	2080878078	4163651200	0.499772430
25.12	0.0068	218.7	600,319	3297896360	4163651200	0.792068356
39.82	0.0068	218.7	600,319	5227795902	4163651200	1.255579695
63.1	0.0068	218.7	600,319	8284126606	4163651200	1.989630305
100	0.0068	218.7	600,319	13128568313	4163651200	3.153138359

(v) PEO 8 g/dL – HTAC 8 g/dL (c_s/c_p = 1.0) in water at 50°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.01	423	538	68400
0.0159	919	1037	87420
0.0251	1485	1571	86080
0.0398	2081	2099	74240
0.0631	2777	2655	60880
0.1	3584	3260	48450
0.1585	4503	3862	37430
0.2512	5557	4479	28410
0.3981	6758	5112	21290
0.631	8103	5808	15800
1	9624	6446	11580
1.585	11260	7059	8385
2.512	13090	7632	6031
3.981	15010	8196	4297
6.31	17220	8702	3058
10	19550	9091	2156
15.85	22200	9225	1517
25.12	25000	9360	1055
39.82	27810	9512	723
63.10	29690	9780	477
100	29660	9995	298

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
744	600,319	0.16	323	446817432	4296675200	0.103991438
1514	600,319	0.16	323	908882966	4296675200	0.211531690
2395	600,319	0.16	323	1437764005	4296675200	0.334622455
3305	600,319	0.16	323	1984054295	4296675200	0.461765017
4303	600,319	0.16	323	2583172657	4296675200	0.601202683
5514	600,319	0.16	323	3310158966	4296675200	0.770400091
6854	600,319	0.16	323	4114586426	4296675200	0.957621006
8401	600,319	0.16	323	5043279919	4296675200	1.173763360
10140	600,319	0.16	323	6087234660	4296675200	1.416731397
12100	600,319	0.16	323	7263859900	4296675200	1.690576914
14170	600,319	0.16	323	8506520230	4296675200	1.979791312
16610	600,319	0.16	323	9971298590	4296675200	2.320701036
19170	600,319	0.16	323	11508115230	4296675200	2.678376813
21860	600,319	0.16	323	13122973340	4296675200	3.054215813
24760	600,319	0.16	323	14863898440	4296675200	3.459395404

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
916	0.01	0.0057	600,319	0.16	323	549772106	4296675200	0.127953
1644	0.01585	0.0057	600,319	0.16	323	986924382	4296675200	0.229695
2437	0.02512	0.0057	600,319	0.16	323	1462977317	4296675200	0.340491
3190	0.03981	0.0057	600,319	0.16	323	1915017474	4296675200	0.445698
3986	0.0631	0.0057	600,319	0.16	323	2392871318	4296675200	0.556912
4798	0.1	0.0057	600,319	0.16	323	2880330220	4296675200	0.670363
5617	0.1585	0.0057	600,319	0.16	323	3371991281	4296675200	0.784791
6518	0.2512	0.0057	600,319	0.16	323	3912878382	4296675200	0.910676
7369	0.3981	0.0057	600,319	0.16	323	4423749349	4296675200	1.029575
8261	0.631	0.0057	600,319	0.16	323	4959233100	4296675200	1.154202
9153	1	0.0057	600,319	0.16	323	5494716385	4296675200	1.278830
9876	1.585	0.0057	600,319	0.16	323	5928745020	4296675200	1.379845
10710	2.512	0.0057	600,319	0.16	323	6429407894	4296675200	1.496368
11360	3.981	0.0057	600,319	0.16	323	6819610218	4296675200	1.587183
11870	6.31	0.0057	600,319	0.16	323	7125764938	4296675200	1.658437

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η$_0$ - η$_s$)M	cRT	ω(η$_0$-η$_s$)M/cRT
0.01	0.0057	712.5	600,319	4277239	4296675200	0.000995476
0.01585	0.0057	712.5	600,319	6779423	4296675200	0.001577830
0.02512	0.0057	712.5	600,319	10744424	4296675200	0.002500637
0.03981	0.0057	712.5	600,319	17027687	4296675200	0.003962991
0.0631	0.0057	712.5	600,319	26989376	4296675200	0.006281456
0.1	0.0057	712.5	600,319	42772387	4296675200	0.009954764
0.1585	0.0057	712.5	600,319	67794233	4296675200	0.015778301
0.2512	0.0057	712.5	600,319	107444235	4296675200	0.025006367
0.3981	0.0057	712.5	600,319	170276871	4296675200	0.039629915
0.631	0.0057	712.5	600,319	269893759	4296675200	0.062814559
1	0.0057	712.5	600,319	427723866	4296675200	0.099547638
1.585	0.0057	712.5	600,319	677942327	4296675200	0.157783006
2.512	0.0057	712.5	600,319	1074442351	4296675200	0.250063666
3.981	0.0057	712.5	600,319	1702768709	4296675200	0.396299145
6.31	0.0057	712.5	600,319	2698937592	4296675200	0.628145593
10	0.0057	712.5	600,319	4277238657	5038284000	0.848947510
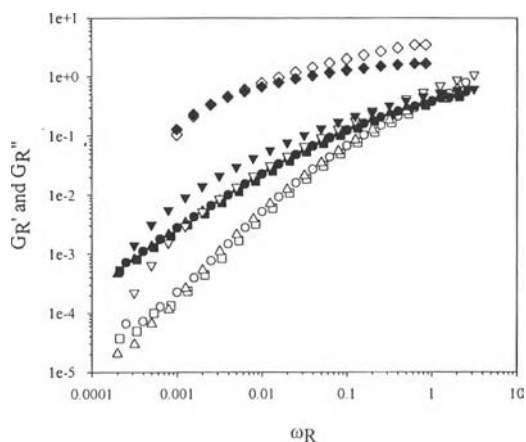
Figure 6.1 The reduced moduli (G_R' and G_R") as a function of reduced frequency (ω_R) for PEO (8 g/dL)-HTAC (8 g/dL) (c_s/c_p = 1.0) at different temperatures: (O) 10°C; (□) 20°C; (Δ) 30°C; (∇) 40°C; and (◊) 50°C. The open symbols refer to G_R' and the closed symbols represent G_R".
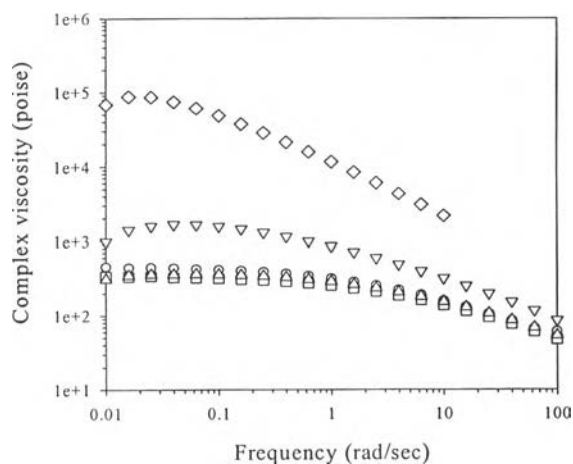

Figure 6.2 The complex viscosity as a function of frequency for PEO-HTAC at c_s/c_p = 1.0 at different temperatures.

6.1.5 PEO 8 g/dL-HTAC 12 g/dL in water

(i) PEO 8 g/dL – HTAC 12 g/dL (c_s/c_p = 1.5) in water at 10 °C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.01	0.1573	5.002	500.5
0.0159	0.0649	7.823	493.6
0.0251	0.4753	12.66	504.3
0.0398	1.035	19.79	497.9
0.0631	2.193	31.09	494.0
0.1	4.858	48.7	489.5
0.1585	10.15	75.02	477.6
0.2512	19.77	114.1	460.9
0.3981	38.09	170.9	439.9
0.6310	70.18	250.2	411.8
1	123.5	359.4	380.0
1.585	207.2	504.3	344.0
2.512	334.1	688.9	304.8
3.981	518.2	917.9	264.8
6.31	778.9	1195	226.0
10	1131	1522	189.6
15.85	1592	1893	156.0
25.12	2190	2301	126.5
39.82	2941	2728	100.7
63.10	3869	3134	78.91
100	4951	3475	60.49

Figure is shown in Section 4.6.1.

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.1573	600,319	0.2	283	9.44E+04	4705724000	2.01E-05
0.0649	600,319	0.2	283	3.90E+04	4705724000	8.28E-06
0.4753	600,319	0.2	283	2.85E+05	4705724000	6.06E-05
1.035	600,319	0.2	283	6.21E+05	4705724000	1.32E-04
2.193	600,319	0.2	283	1.32E+06	4705724000	2.80E-04
4.858	600,319	0.2	283	2.92E+06	4705724000	6.20E-04
10.15	600,319	0.2	283	6.09E+06	4705724000	1.29E-03
19.77	600,319	0.2	283	1.19E+07	4705724000	2.52E-03
38.09	600,319	0.2	283	2.29E+07	4705724000	4.86E-03
70.18	600,319	0.2	283	4.21E+07	4705724000	8.95E-03
123.5	600,319	0.2	283	7.41E+07	4705724000	1.58E-02
207.2	600,319	0.2	283	1.24E+08	4705724000	2.64E-02
334.1	600,319	0.2	283	2.01E+08	4705724000	4.26E-02
518.2	600,319	0.2	283	3.11E+08	4705724000	6.61E-02
778.9	600,319	0.2	283	4.68E+08	4705724000	9.94E-02
1131	600,319	0.2	283	6.79E+08	4705724000	1.44E-01
1592	600,319	0.2	283	9.56E+08	4705724000	2.03E-01
2190	600,319	0.2	283	1.31E+09	4705724000	2.79E-01
2941	600,319	0.2	283	1.77E+09	4705724000	3.75E-01
3869	600,319	0.2	283	2.32E+09	4705724000	4.94E-01
4951	600,319	0.2	283	2.97E+09	4705724000	6.32E-01

G" (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" − $\omega\eta_s$)M	cRT	(G" − $\omega\eta_s$)M/cRT
5.002	0.01	0.0115	600,319	0.2	283	3002727	4705724000	0.000638
7.823	0.01585	0.0115	600,319	0.2	283	4696186	4705724000	0.000998
12.66	0.02512	0.0115	600,319	0.2	283	7599865	4705724000	0.001615
19.79	0.03981	0.0115	600,319	0.2	283	11880038	4705724000	0.002525
31.09	0.0631	0.0115	600,319	0.2	283	18663482	4705724000	0.003966
48.70	0.1	0.0115	600,319	0.2	283	29234845	4705724000	0.006213
75.02	0.1585	0.0115	600,319	0.2	283	45034837	4705724000	0.009570
114.1	0.2512	0.0115	600,319	0.2	283	68494664	4705724000	0.014556
170.9	0.3981	0.0115	600,319	0.2	283	102591769	4705724000	0.021801
250.2	0.631	0.0115	600,319	0.2	283	150195458	4705724000	0.031918
359.4	1	0.0115	600,319	0.2	283	215747745	4705724000	0.045848
504.3	1.585	0.0115	600,319	0.2	283	302729929	4705724000	0.064332
688.9	2.512	0.0115	600,319	0.2	283	413542417	4705724000	0.087881
917.9	3.981	0.0115	600,319	0.2	283	551005327	4705724000	0.117093
1195	6.31	0.0115	600,319	0.2	283	717337643	4705724000	0.152439
1522	10	0.0115	600,319	0.2	283	913616481	4705724000	0.194150
1893	15.85	0.0115	600,319	0.2	283	1136294444	4705724000	0.241471
2301	25.12	0.0115	600,319	0.2	283	1381160599	4705724000	0.293507
2728	39.82	0.0115	600,319	0.2	283	1637395328	4705724000	0.347958
3134	63.10	0.0115	600,319	0.2	283	1880964125	4705724000	0.399718
3475	100	0.0115	600,319	0.2	283	2085418158	4705724000	0.443166

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.0115	188.8	600,319	1133333	4705724000	0.000240841
0.0159	0.0115	188.8	600,319	1796333	4705724000	0.000381734
0.0251	0.0115	188.8	600,319	2846933	4705724000	0.000604994
0.0398	0.0115	188.8	600,319	4511800	4705724000	0.00095879
0.0631	0.0115	188.8	600,319	7151333	4705724000	0.001519709
0.1	0.0115	188.8	600,319	11333332	4705724000	0.002408414
0.1585	0.0115	188.8	600,319	17963332	4705724000	0.003817336
0.2512	0.0115	188.8	600,319	28469331	4705724000	0.006049936
0.3981	0.0115	188.8	600,319	45117996	4705724000	0.009587897
0.6310	0.0115	188.8	600,319	71513327	4705724000	0.015197093
1	0.0115	188.8	600,319	113333324	4705724000	0.024084142
1.585	0.0115	188.8	600,319	179633318	4705724000	0.038173365
2.512	0.0115	188.8	600,319	284693309	4705724000	0.060499364
3.981	0.0115	188.8	600,319	451179961	4705724000	0.095878968
6.31	0.0115	188.8	600,319	715133271	4705724000	0.151970934
10	0.0115	188.8	600,319	1133333235	4705724000	0.240841417
15.85	0.0115	188.8	600,319	1796333178	4705724000	0.381733646
25.12	0.0115	188.8	600,319	2846933087	4705724000	0.604993639
39.82	0.0115	188.8	600,319	4512932943	4705724000	0.959030522
63.10	0.0115	188.8	600,319	7151332715	4705724000	1.519709340
100	0.0115	188.8	600,319	11333332353	4705724000	2.408414168

(ii) PEO 8 g/dL – HTAC 12 g/dL (c_s/c_p = 1.5) in water at 20°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.01	0.01312	3.845	385
0.0159	0.1209	5.896	372
0.0251	0.2024	9.394	374
0.0398	0.5708	15.20	382
0.0631	1.079	23.88	379
0.1	2.853	37.53	376
0.1585	6.072	58.21	369
0.2512	12.43	89.75	361
0.3981	24.93	135.7	347
0.6310	47.84	202.3	329
1	86.78	294.7	307
1.585	150.9	420.6	282
2.512	251.9	584.3	253
3.981	403.0	792.8	223
6.31	619.2	1053	194
10	920.6	1361	164
15.85	1324	1722	137
25.12	1858	2126	112
39.82	2545	2565	90.8
63.10	3408	2998	71.9
100	4440	3385	55.8

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.0131	600,319	0.2	293	7.88E+03	4872004000	1.62E-06
0.1209	600,319	0.2	293	7.26E+04	4872004000	1.49E-05
0.2024	600,319	0.2	293	1.22E+05	4872004000	2.49E-05
0.5708	600,319	0.2	293	3.43E+05	4872004000	7.03E-05
1.079	600,319	0.2	293	6.48E+05	4872004000	1.33E-04
2.853	600,319	0.2	293	1.71E+06	4872004000	3.52E-04
6.072	600,319	0.2	293	3.65E+06	4872004000	7.48E-04
12.43	600,319	0.2	293	7.46E+06	4872004000	1.53E-03
24.93	600,319	0.2	293	1.50E+07	4872004000	3.07E-03
47.84	600,319	0.2	293	2.87E+07	4872004000	5.89E-03
86.78	600,319	0.2	293	5.21E+07	4872004000	1.07E-02
150.9	600,319	0.2	293	9.06E+07	4872004000	1.86E-02
251.9	600,319	0.2	293	1.51E+08	4872004000	3.10E-02
403.0	600,319	0.2	293	2.42E+08	4872004000	4.97E-02
619.2	600,319	0.2	293	3.72E+08	4872004000	7.63E-02
920.6	600,319	0.2	293	5.53E+08	4872004000	1.13E-01
1324	600,319	0.2	293	7.95E+08	4872004000	1.63E-01
1858	600,319	0.2	293	1.12E+09	4872004000	2.29E-01
2545	600,319	0.2	293	1.53E+09	4872004000	3.14E-01
3408	600,319	0.2	293	2.05E+09	4872004000	4.20E-01
4440	600,319	0.2	293	2.67E+09	4872004000	5.47E-01

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	$(G" - \omega\eta_s)M$	cRT	$(G" - \omega\eta_s)M/cRT$
3.845	0.01	0.01	600,319	0.2	293	2308167	4872004000	0.000474
5.896	0.0159	0.01	600,319	0.2	293	3539386	4872004000	0.000726
9.394	0.0251	0.01	600,319	0.2	293	5639246	4872004000	0.001157
15.20	0.0398	0.01	600,319	0.2	293	9124610	4872004000	0.001873
23.88	0.0631	0.01	600,319	0.2	293	14335239	4872004000	0.002942
37.53	0.1	0.01	600,319	0.2	293	22529372	4872004000	0.004624
58.21	0.1585	0.01	600,319	0.2	293	34943617	4872004000	0.007172
89.75	0.2512	0.01	600,319	0.2	293	53877122	4872004000	0.011059
135.7	0.3981	0.01	600,319	0.2	293	81460898	4872004000	0.016720
202.3	0.6310	0.01	600,319	0.2	293	121440746	4872004000	0.024926
294.7	1	0.01	600,319	0.2	293	176908006	4872004000	0.036311
420.6	1.585	0.01	600,319	0.2	293	252484656	4872004000	0.051824
584.3	2.512	0.01	600,319	0.2	293	350751312	4872004000	0.071993
792.8	3.981	0.01	600,319	0.2	293	475909005	4872004000	0.097682
1053	6.31	0.01	600,319	0.2	293	632098027	4872004000	0.129741
1361	10	0.01	600,319	0.2	293	816974127	4872004000	0.167687
1722	15.85	0.01	600,319	0.2	293	1033654167	4872004000	0.212162
2126	25.12	0.01	600,319	0.2	293	1276127394	4872004000	0.261931
2565	39.82	0.01	600,319	0.2	293	1539579188	4872004000	0.316005
2998	63.1	0.01	600,319	0.2	293	1799377561	4872004000	0.369330
3385	100	0.01	600,319	0.2	293	2031479496	4872004000	0.416970

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.01	164.7	600,319	988665.36	4872004000	0.000202928
0.0159	0.01	164.7	600,319	1567034.60	4872004000	0.000321641
0.0251	0.01	164.7	600,319	2483527.4	4872004000	0.000509755
0.0398	0.01	164.7	600,319	3935876.8	4872004000	0.000807856
0.0631	0.01	164.7	600,319	6238478	4872004000	0.001280475
0.1	0.01	164.7	600,319	9886654	4872004000	0.002029279
0.1585	0.01	164.7	600,319	15670346	4872004000	0.003216407
0.2512	0.01	164.7	600,319	24835274	4872004000	0.005097548
0.3981	0.01	164.7	600,319	39358768	4872004000	0.008078558
0.6310	0.01	164.7	600,319	62384784	4872004000	0.012804748
1	0.01	164.7	600,319	98866536	4872004000	0.020292786
1.585	0.01	164.7	600,319	156703460	4872004000	0.032164066
2.512	0.01	164.7	600,319	248352739	4872004000	0.050975479
3.981	0.01	164.7	600,319	393587680	4872004000	0.080785582
6.31	0.01	164.7	600,319	623847843	4872004000	0.128047482
10	0.01	164.7	600,319	988665361	4872004000	0.202927863
15.85	0.01	164.7	600,319	1567034597	4872004000	0.321640663
25.12	0.01	164.7	600,319	2483527387	4872004000	0.509754792
39.82	0.01	164.7	600,319	3936865468	4872004000	0.808058751
63.1	0.01	164.7	600,319	6238478429	4872004000	1.280474817
100	0.01	164.7	600,319	9886653611	4872004000	2.029278632

(iii) PEO 8 g/dL – HTAC 12 g/dL (c_s/c_p = 1.5) in water at 30°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.01	1.193	8.439	852.3
0.0159	2.536	14.12	905.4
0.0251	3.779	21.86	883.1
0.0398	6.733	33.57	860.0
0.0631	11.11	50.98	826.8
0.1	18.77	75.89	781.7
0.1585	30.71	111.6	730.3
0.2512	50.50	162.4	676.9
0.3981	81.40	233.2	620.3
0.6310	129.9	328.6	560.0
1	205.5	457.9	501.9
1.585	315.6	624	441.2
2.512	476.2	836	383.0
3.981	701	1097	327.0
6.31	1012	1413	275.5
10	1426	1786	228.6
15.85	1965	2207	186.4
25.12	2658	2673	150.1
39.82	3539	3158	119.1
63.10	4623	3607	92.93
100	5873	3952	70.79

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
1.19E+00	600,319	0.2	303	7.16E+05	5038284000	1.42E-04
2.54E+00	600,319	0.2	303	1.52E+06	5038284000	3.02E-04
3.78E+00	600,319	0.2	303	2.27E+06	5038284000	4.50E-04
6.73E+00	600,319	0.2	303	4.04E+06	5038284000	8.02E-04
1.11E+01	600,319	0.2	303	6.67E+06	5038284000	1.32E-03
1.88E+01	600,319	0.2	303	1.13E+07	5038284000	2.24E-03
3.07E+01	600,319	0.2	303	1.84E+07	5038284000	3.66E-03
5.05E+01	600,319	0.2	303	3.03E+07	5038284000	6.02E-03
8.14E+01	600,319	0.2	303	4.89E+07	5038284000	9.70E-03
1.30E+02	600,319	0.2	303	7.80E+07	5038284000	1.55E-02
2.06E+02	600,319	0.2	303	1.23E+08	5038284000	2.45E-02
3.16E+02	600,319	0.2	303	1.89E+08	5038284000	3.76E-02
4.76E+02	600,319	0.2	303	2.86E+08	5038284000	5.67E-02
7.01E+02	600,319	0.2	303	4.21E+08	5038284000	8.35E-02
1.01E+03	600,319	0.2	303	6.08E+08	5038284000	1.21E-01
1.43E+03	600,319	0.2	303	8.56E+08	5038284000	1.70E-01
1.97E+03	600,319	0.2	303	1.18E+09	5038284000	2.34E-01
2.66E+03	600,319	0.2	303	1.60E+09	5038284000	3.17E-01
3.54E+03	600,319	0.2	303	2.12E+09	5038284000	4.22E-01
4.62E+03	600,319	0.2	303	2.78E+09	5038284000	5.51E-01
5.87E+03	600,319	0.2	303	3.53E+09	5038284000	7.00E-01

G" (dyne/cm^2)	ω (rad/s)	η$_s$ (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
8.44E+00	0.01	0.0082	600,319	0.2	303	5066043	5038284000	0.001006
1.41E+01	0.0159	0.0082	600,319	0.2	303	8476426	5038284000	0.001682
2.19E+01	0.0251	0.0082	600,319	0.2	303	13122850	5038284000	0.002605
3.36E+01	0.0398	0.0082	600,319	0.2	303	20152513	5038284000	0.004000
5.10E+01	0.0631	0.0082	600,319	0.2	303	30603952	5038284000	0.006074
7.59E+01	0.1	0.0082	600,319	0.2	303	45557717	5038284000	0.009042
1.12E+02	0.1585	0.0082	600,319	0.2	303	66994820	5038284000	0.013297
1.62E+02	0.2512	0.0082	600,319	0.2	303	97490569	5038284000	0.019350
2.33E+02	0.3981	0.0082	600,319	0.2	303	139992431	5038284000	0.027786
3.29E+02	0.6310	0.0082	600,319	0.2	303	197261717	5038284000	0.039153
4.58E+02	1	0.0082	600,319	0.2	303	274881147	5038284000	0.054558
6.24E+02	1.585	0.0082	600,319	0.2	303	374591254	5038284000	0.074349
8.36E+02	2.512	0.0082	600,319	0.2	303	501854318	5038284000	0.099608
1.10E+03	3.981	0.0082	600,319	0.2	303	658530346	5038284000	0.130705
1.41E+03	6.310	0.0082	600,319	0.2	303	848219685	5038284000	0.168355
1.79E+03	10	0.0082	600,319	0.2	303	1072120508	5038284000	0.212795
2.21E+03	15.85	0.0082	600,319	0.2	303	1324826010	5038284000	0.262952
2.67E+03	25.12	0.0082	600,319	0.2	303	1604529031	5038284000	0.318467
3.16E+03	39.82	0.0082	600,319	0.2	303	1895611383	5038284000	0.376241
3.61E+03	63.10	0.0082	600,319	0.2	303	2165040016	5038284000	0.429718
3.95E+03	100	0.0082	600,319	0.2	303	2371968426	5038284000	0.470789

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.01	164.7	600,319	988665.36	4872004000	0.000202928
0.0159	0.01	164.7	600,319	1567034.60	4872004000	0.000321641
0.0251	0.01	164.7	600,319	2483527.4	4872004000	0.000509755
0.0398	0.01	164.7	600,319	3935876.8	4872004000	0.000807856
0.0631	0.01	164.7	600,319	6238478	4872004000	0.001280475
0.1	0.01	164.7	600,319	9886654	4872004000	0.002029279
0.1585	0.01	164.7	600,319	15670346	4872004000	0.003216407
0.2512	0.01	164.7	600,319	24835274	4872004000	0.005097548
0.3981	0.01	164.7	600,319	39358768	4872004000	0.008078558
0.6310	0.01	164.7	600,319	62384784	4872004000	0.012804748
1	0.01	164.7	600,319	98866536	4872004000	0.020292786
1.585	0.01	164.7	600,319	156703460	4872004000	0.032164066
2.512	0.01	164.7	600,319	248352739	4872004000	0.050975479
3.981	0.01	164.7	600,319	393587680	4872004000	0.080785582
6.31	0.01	164.7	600,319	623847843	4872004000	0.128047482
10	0.01	164.7	600,319	988665361	4872004000	0.202927863
15.85	0.01	164.7	600,319	1567034597	4872004000	0.321640663
25.12	0.01	164.7	600,319	2483527387	4872004000	0.509754792
39.82	0.01	164.7	600,319	3936865468	4872004000	0.808058751
63.1	0.01	164.7	600,319	6238478429	4872004000	1.280474817
100	0.01	164.7	600,319	9886653611	4872004000	2.029278632

(iv) PEO 8 g/dL – HTAC 12 g/dL ($c_s/c_p = 1.5$) in water at 40°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.01	23.96	123.7	12600
0.0159	42.37	212.3	13660
0.0251	77.69	300.4	12350
0.0398	113.6	380.0	9963
0.0631	159.7	451.5	7589
0.1	237.1	570.1	6174
0.1585	325.9	670.4	4703
0.2512	441.9	809.1	3670
0.3981	580.8	948.3	2793
0.6310	772.7	1147	2191
1	994.1	1354	1680
1.585	1288	1606	1299
2.512	1671	1926	1015
3.981	2125	2265	780.1
6.310	2692	2641	597.6
10	3396	3078	458.3
15.85	4240	3548	348.8
25.12	5278	4050	264.8
39.82	6524	4493	198.9
63.10	7996	4806	147.8
100	9566	4929	107.6

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
23.96	600,319	0.2	313	1.44E+07	5204564000	2.76E-03
42.37	600,319	0.2	313	2.54E+07	5204564000	4.89E-03
77.69	600,319	0.2	313	4.66E+07	5204564000	8.96E-03
113.6	600,319	0.2	313	6.82E+07	5204564000	1.31E-02
159.7	600,319	0.2	313	9.59E+07	5204564000	1.84E-02
237.1	600,319	0.2	313	1.42E+08	5204564000	2.73E-02
325.9	600,319	0.2	313	1.96E+08	5204564000	3.76E-02
441.9	600,319	0.2	313	2.65E+08	5204564000	5.10E-02
580.8	600,319	0.2	313	3.49E+08	5204564000	6.70E-02
772.7	600,319	0.2	313	4.64E+08	5204564000	8.91E-02
994.1	600,319	0.2	313	5.97E+08	5204564000	1.15E-01
1288	600,319	0.2	313	7.73E+08	5204564000	1.49E-01
1671	600,319	0.2	313	1.00E+09	5204564000	1.93E-01
2125	600,319	0.2	313	1.28E+09	5204564000	2.45E-01
2692	600,319	0.2	313	1.62E+09	5204564000	3.11E-01
3396	600,319	0.2	313	2.04E+09	5204564000	3.92E-01
4240	600,319	0.2	313	2.55E+09	5204564000	4.89E-01
5278	600,319	0.2	313	3.17E+09	5204564000	6.09E-01
6524	600,319	0.2	313	3.92E+09	5204564000	7.53E-01
7996	600,319	0.2	313	4.80E+09	5204564000	9.22E-01
9566	600,319	0.2	313	5.74E+09	5204564000	1.10E+00

G" (dyne/cm^2)	ω (rad/s)	η$_s$ (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
123.7	0.01	0.0068	600,319	0.2	313	74259419	5204564000	0.01427
212.3	0.0159	0.0068	600,319	0.2	313	127447659	5204564000	0.02449
300.4	0.0251	0.0068	600,319	0.2	313	180335725	5204564000	0.03465
380.0	0.0398	0.0068	600,319	0.2	313	228121057	5204564000	0.04383
451.5	0.0631	0.0068	600,319	0.2	313	271043771	5204564000	0.05208
570.1	0.1	0.0068	600,319	0.2	313	342241454	5204564000	0.06576
670.4	0.1585	0.0068	600,319	0.2	313	402453211	5204564000	0.07733
809.1	0.2512	0.0068	600,319	0.2	313	485717077	5204564000	0.09333
948.3	0.3981	0.0068	600,319	0.2	313	569280883	5204564000	0.10938
1147	0.6310	0.0068	600,319	0.2	313	688563317	5204564000	0.13230
1354	1	0.0068	600,319	0.2	313	812827844	5204564000	0.15618
1606	1.585	0.0068	600,319	0.2	313	964105844	5204564000	0.18524
1926	2.512	0.0068	600,319	0.2	313	1156204140	5204564000	0.22215
2265	3.981	0.0068	600,319	0.2	313	1359706284	5204564000	0.26125
2641	6.310	0.0068	600,319	0.2	313	1585416721	5204564000	0.30462
3078	10	0.0068	600,319	0.2	313	1847741060	5204564000	0.35502
3548	15.85	0.0068	600,319	0.2	313	2129867110	5204564000	0.40923
4050	25.12	0.0068	600,319	0.2	313	2431189406	5204564000	0.46713
4493	39.82	0.0068	600,319	0.2	313	2697070715	5204564000	0.51821
4806	63.10	0.0068	600,319	0.2	313	2884875529	5204564000	0.55430
4929	100	0.0068	600,319	0.2	313	2958564134	5204564000	0.56846

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.0068	237.3	600,319	1424516	5038284000	0.00028
0.0159	0.0068	237.3	600,319	2257858	5038284000	0.00045
0.0251	0.0068	237.3	600,319	3578385	5038284000	0.00071
0.0398	0.0068	237.3	600,319	5670999	5038284000	0.00113
0.0631	0.0068	237.3	600,319	8988697	5038284000	0.00178
0.1	0.0068	237.3	600,319	14245162	5038284000	0.00283
0.1585	0.0068	237.3	600,319	22578581	5038284000	0.00448
0.2512	0.0068	237.3	600,319	35783846	5038284000	0.00710
0.3981	0.0068	237.3	600,319	56709989	5038284000	0.01126
0.6310	0.0068	237.3	600,319	89886970	5038284000	0.01784
1	0.0068	237.3	600,319	142451617	5038284000	0.02827
1.585	0.0068	237.3	600,319	225785812	5038284000	0.04481
2.512	0.0068	237.3	600,319	357838461	5038284000	0.07102
3.981	0.0068	237.3	600,319	567099885	5038284000	0.11256
6.310	0.0068	237.3	600,319	898869700	5038284000	0.17841
10	0.0068	237.3	600,319	1424516165	5038284000	0.28274
15.85	0.0068	237.3	600,319	2257858122	5038284000	0.44814
25.12	0.0068	237.3	600,319	3578384607	5038284000	0.71024
39.82	0.0068	237.3	600,319	5672423370	5038284000	1.12586
63.10	0.0068	237.3	600,319	8988697003	5038284000	1.78408
100	0.0068	237.3	600,319	14245161653	5038284000	2.82738

(v) PEO 8 g/dL – HTAC 12 g/dL (c_s/c_p = 1.5) in water at 50°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.01	705.1	961	119200
0.0159	1393	1678	137600
0.0251	2121	2396	127400
0.0398	2914	3125	107300
0.0631	3821	3901	86540
0.1	4863	4695	67590
0.1585	6107	5515	51910
0.2512	7482	6349	39070
0.3981	9037	7183	29000
0.6310	10710	8120	21300
1	12690	8877	15490
1.585	14820	9691	11170
2.512	17090	10480	7981
3.981	19570	11060	5646
6.310	22250	11630	3979
10	25210	11950	2790

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
705	600,319	0.2	323	4.23E+08	5370844000	7.88E-02
1393	600,319	0.2	323	8.36E+08	5370844000	1.56E-01
2121	600,319	0.2	323	1.27E+09	5370844000	2.37E-01
2914	600,319	0.2	323	1.75E+09	5370844000	3.26E-01
3821	600,319	0.2	323	2.29E+09	5370844000	4.27E-01
4863	600,319	0.2	323	2.92E+09	5370844000	5.44E-01
6107	600,319	0.2	323	3.67E+09	5370844000	6.83E-01
7482	600,319	0.2	323	4.49E+09	5370844000	8.36E-01
9037	600,319	0.2	323	5.43E+09	5370844000	1.01E+00
10710	600,319	0.2	323	6.43E+09	5370844000	1.20E+00
12690	600,319	0.2	323	7.62E+09	5370844000	1.42E+00
14820	600,319	0.2	323	8.90E+09	5370844000	1.66E+00
17090	600,319	0.2	323	1.03E+10	5370844000	1.91E+00
19570	600,319	0.2	323	1.17E+10	5370844000	2.19E+00
22250	600,319	0.2	323	1.34E+10	5370844000	2.49E+00
25210	600,319	0.2	323	1.51E+10	5370844000	2.82E+00

G" (dyne/cm²)	ω (rad/s)	η$_s$ (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
961	0.01	0.0057	600,319	0.2	323	577026589	5370844000	0.10744
1678	0.0159	0.0057	600,319	0.2	323	1007335228	5370844000	0.18756
2396	0.0251	0.0057	600,319	0.2	323	1438364238	5370844000	0.26781
3125	0.0398	0.0057	600,319	0.2	323	1875996739	5370844000	0.34929
3901	0.0631	0.0057	600,319	0.2	323	2341844203	5370844000	0.43603
4695	0.1	0.0057	600,319	0.2	323	2818497363	5370844000	0.52478
5515	0.1585	0.0057	600,319	0.2	323	3310758743	5370844000	0.61643
6349	0.2512	0.0057	600,319	0.2	323	3811424471	5370844000	0.70965
7183	0.3981	0.0057	600,319	0.2	323	4312090015	5370844000	0.80287
8120	0.6310	0.0057	600,319	0.2	323	4874588121	5370844000	0.90760
8877	1	0.0057	600,319	0.2	323	5329028341	5370844000	0.99221
9691	1.585	0.0057	600,319	0.2	323	5817686005	5370844000	1.08320
10480	2.512	0.0057	600,319	0.2	323	6291334524	5370844000	1.17139
11060	3.981	0.0057	600,319	0.2	323	6639514518	5370844000	1.23621
11630	6.310	0.0057	600,319	0.2	323	6981688378	5370844000	1.29992
11950	10	0.0057	600,319	0.2	323	7173777832	5370844000	1.33569

ω (rad/s)	η$_s$ (poise)	η$_0$ (poise)	M (g/mol)	ω(η$_0$ - η$_s$)M	cRT	ω(η$_0$-η$_s$)M/cRT
0.01	0.0057	592	600,319	3553854	5038284000	0.00071
0.0159	0.0057	592	600,319	5632859	5038284000	0.00112
0.0251	0.0057	592	600,319	8927282	5038284000	0.00177
0.0398	0.0057	592	600,319	14147894	5038284000	0.00281
0.0631	0.0057	592	600,319	22424820	5038284000	0.00445
0.1	0.0057	592	600,319	35538543	5038284000	0.00705
0.1585	0.0057	592	600,319	56328590	5038284000	0.01118
0.2512	0.0057	592	600,319	89272819	5038284000	0.01772
0.3981	0.0057	592	600,319	141478938	5038284000	0.02808
0.6310	0.0057	592	600,319	224248204	5038284000	0.04451
1	0.0057	592	600,319	355385426	5038284000	0.07054
1.585	0.0057	592	600,319	563285900	5038284000	0.11180
2.512	0.0057	592	600,319	892728191	5038284000	0.17719
3.981	0.0057	592	600,319	1414789382	5038284000	0.28081
6.310	0.0057	592	600,319	2242482039	5038284000	0.44509
10	0.0057	592	600,319	3553854262	5038284000	0.70537

6.1.6 PEO 8 g/dL-HTAC 16 g/dL in water

(i) PEO 8 g/dL – HTAC 16 g/dL (c_s/c_p = 2.0) in water at 20°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.01	1.670	14.04	1413
0.0159	1.138	13.17	834.0
0.0251	0.999	15.06	600.7
0.0398	1.755	21.22	534.9
0.0631	2.600	31.39	499.2
0.1	4.763	45.31	455.6
0.1585	8.611	66.82	425.0
0.2512	16.52	97.38	393.2
0.3981	30.77	144.7	371.7
0.6310	57.05	211.1	346.5
1	99.13	302.5	318.3
1.585	168.1	424.3	288.0
2.512	273.2	582.7	256.2
3.981	427.5	779.1	223.2
6.310	642.4	1024	191.5
10	939.0	1307	160.9
15.85	1329	1635	133.0
25.12	1838	2000	108.1
39.82	2483	2391	86.55
63.10	3280	2775	68.09
100	4226	3121	52.53

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	CRT	G' M/cRT
1.67	600,319	0.24	293	1002533	5846404800	0.00017
1.14	600,319	0.24	293	683163	5846404800	0.00012
1.00	600,319	0.24	293	599419	5846404800	0.00010
1.76	600,319	0.24	293	1053560	5846404800	0.00018
2.60	600,319	0.24	293	1560829	5846404800	0.00027
4.76	600,319	0.24	293	2859319	5846404800	0.00049
8.61	600,319	0.24	293	5169347	5846404800	0.00088
16.52	600,319	0.24	293	9917270	5846404800	0.00170
30.77	600,319	0.24	293	18471816	5846404800	0.00316
57.05	600,319	0.24	293	34248199	5846404800	0.00586
99.13	600,319	0.24	293	59509622	5846404800	0.01018
168.1	600,319	0.24	293	100913624	5846404800	0.01726
273.2	600,319	0.24	293	164007151	5846404800	0.02805
427.5	600,319	0.24	293	256636373	5846404800	0.04390
642.4	600,319	0.24	293	385644926	5846404800	0.06596
939.0	600,319	0.24	293	563699541	5846404800	0.09642
1329	600,319	0.24	293	797823951	5846404800	0.13646
1838	600,319	0.24	293	1103386322	5846404800	0.18873
2483	600,319	0.24	293	1490592077	5846404800	0.25496
3280	600,319	0.24	293	1969046320	5846404800	0.33680
4226	600,319	0.24	293	2536948094	5846404800	0.43393

G" (dyne/cm^2)	ω (rad/s)	η$_s$ (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
14.04	0.01	0.01	600,319	0.24	293	8428419	5846404800	0.00144
13.17	0.0159	0.01	600,319	0.24	293	7906106	5846404800	0.00135
15.06	0.0251	0.01	600,319	0.24	293	9040653	5846404800	0.00155
21.22	0.0398	0.01	600,319	0.24	293	12738530	5846404800	0.00218
31.39	0.0631	0.01	600,319	0.24	293	18843635	5846404800	0.00322
45.31	0.1	0.01	600,319	0.24	293	27199854	5846404800	0.00465
66.82	0.1585	0.01	600,319	0.24	293	40112364	5846404800	0.00686
97.38	0.2512	0.01	600,319	0.24	293	58457556	5846404800	0.01000
144.7	0.3981	0.01	600,319	0.24	293	86863769	5846404800	0.01486
211.1	0.6310	0.01	600,319	0.24	293	126723553	5846404800	0.02168
302.5	1	0.01	600,319	0.24	293	181590494	5846404800	0.03106
424.3	1.585	0.01	600,319	0.24	293	254705837	5846404800	0.04357
582.7	2.512	0.01	600,319	0.24	293	349790801	5846404800	0.05983
779.1	3.981	0.01	600,319	0.24	293	467684634	5846404800	0.08000
1024	6.310	0.01	600,319	0.24	293	614688776	5846404800	0.10514
1307	10	0.01	600,319	0.24	293	784556901	5846404800	0.13419
1635	15.85	0.01	600,319	0.24	293	981426414	5846404800	0.16787
2000	25.12	0.01	600,319	0.24	293	1200487200	5846404800	0.20534
2391	39.82	0.01	600,319	0.24	293	1435123682	5846404800	0.24547
2775	63.10	0.01	600,319	0.24	293	1665506424	5846404800	0.28488
3121	100	0.01	600,319	0.24	293	1872995280	5846404800	0.32037

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.01	159.4	600,319	956848	5846404800	0.00016
0.0159	0.01	159.4	600,319	1516605	5846404800	0.00026
0.0251	0.01	159.4	600,319	2403603	5846404800	0.00041
0.0398	0.01	159.4	600,319	3809214	5846404800	0.00065
0.0631	0.01	159.4	600,319	6037714	5846404800	0.00103
0.1	0.01	159.4	600,319	9568485	5846404800	0.00164
0.1585	0.01	159.4	600,319	15166048	5846404800	0.00259
0.2512	0.01	159.4	600,319	24036033	5846404800	0.00411
0.3981	0.01	159.4	600,319	38092137	5846404800	0.00652
0.6310	0.01	159.4	600,319	60377137	5846404800	0.01033
1	0.01	159.4	600,319	95684845	5846404800	0.01637
1.585	0.01	159.4	600,319	151660480	5846404800	0.02594
2.512	0.01	159.4	600,319	240360332	5846404800	0.04111
3.981	0.01	159.4	600,319	380921370	5846404800	0.06515
6.310	0.01	159.4	600,319	603771375	5846404800	0.10327
10	0.01	159.4	600,319	956848454	5846404800	0.16366
15.85	0.01	159.4	600,319	1516604800	5846404800	0.25941
25.12	0.01	159.4	600,319	2403603317	5846404800	0.41113
39.82	0.01	159.4	600,319	3810170544	5846404800	0.65171
63.10	0.01	159.4	600,319	6037713745	5846404800	1.03272
100	0.01	159.4	600,319	9568484541	5846404800	1.63664

(ii) PEO 8 g/dL – HTAC 16 g/dL (c_s/c_p = 2.0) in water at 30°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G'' (dyne/cm^2)	η* (poise)
0.01	0.3007	3.405	341.8
0.0159	0.2134	5.394	340.6
0.0251	0.3135	8.431	335.8
0.0398	0.6918	13.36	335.9
0.0631	1.229	20.95	332.6
0.1	2.563	32.82	329.2
0.1585	5.356	50.63	321.2
0.2512	10.79	77.71	312.3
0.3981	21.43	118.1	301.6
0.6310	39.87	176.1	286.2
1	73.79	257.6	268.0
1.585	127.9	367.2	245.3
2.512	213.6	512.6	221.1
3.981	342.4	699.3	195.6
6.310	531.1	930.1	169.7
10	794.3	1212	144.9
15.85	1152	1542	121.4
25.12	1622	1914	99.88
39.82	2229	2320	80.80
63.10	2997	2735	64.30
100	3928	3122	50.17

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.3007	600,319	0.24	303	180516	6045940800	0.00003
0.2134	600,319	0.24	303	128108	6045940800	0.00002
0.3135	600,319	0.24	303	188200	6045940800	0.00003
0.6918	600,319	0.24	303	415301	6045940800	0.00007
1.229	600,319	0.24	303	737792	6045940800	0.00012
2.563	600,319	0.24	303	1538618	6045940800	0.00025
5.356	600,319	0.24	303	3215309	6045940800	0.00053
10.79	600,319	0.24	303	6477442	6045940800	0.00107
21.43	600,319	0.24	303	12864836	6045940800	0.00213
39.87	600,319	0.24	303	23934719	6045940800	0.00396
73.79	600,319	0.24	303	44297539	6045940800	0.00733
127.9	600,319	0.24	303	76780800	6045940800	0.01270
213.6	600,319	0.24	303	128228138	6045940800	0.02121
342.4	600,319	0.24	303	205549226	6045940800	0.03400
531.1	600,319	0.24	303	318829421	6045940800	0.05273
794.3	600,319	0.24	303	476833382	6045940800	0.07887
1152	600,319	0.24	303	691567488	6045940800	0.11439
1622	600,319	0.24	303	973717418	6045940800	0.16105
2229	600,319	0.24	303	1338111051	6045940800	0.22132
2997	600,319	0.24	303	1799156043	6045940800	0.29758
3928	600,319	0.24	303	2358053032	6045940800	0.39002

G" (dyne/cm²)	ω (rad/s)	η$_s$ (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
3.405	0.01	0.0082	600,319	0.24	303	2044037	6045940800	0.00034
5.394	0.0159	0.0082	600,319	0.24	303	3238043	6045940800	0.00054
8.431	0.0251	0.0082	600,319	0.24	303	5061166	6045940800	0.00084
13.36	0.0398	0.0082	600,319	0.24	303	8020066	6045940800	0.00133
20.95	0.0631	0.0082	600,319	0.24	303	12576372	6045940800	0.00208
32.82	0.1	0.0082	600,319	0.24	303	19701977	6045940800	0.00326
50.63	0.1585	0.0082	600,319	0.24	303	30393371	6045940800	0.00503
77.71	0.2512	0.0082	600,319	0.24	303	46649553	6045940800	0.00772
118.1	0.3981	0.0082	600,319	0.24	303	70895714	6045940800	0.01173
176.1	0.6310	0.0082	600,319	0.24	303	105713070	6045940800	0.01748
257.6	1	0.0082	600,319	0.24	303	154637252	6045940800	0.02558
367.2	1.585	0.0082	600,319	0.24	303	220429334	6045940800	0.03646
512.6	2.512	0.0082	600,319	0.24	303	307711154	6045940800	0.05090
699.3	3.981	0.0082	600,319	0.24	303	419783480	6045940800	0.06943
930.1	6.310	0.0082	600,319	0.24	303	558325640	6045940800	0.09235
1212	10	0.0082	600,319	0.24	303	727537402	6045940800	0.12033
1542	15.85	0.0082	600,319	0.24	303	925613875	6045940800	0.15310
1914	25.12	0.0082	600,319	0.24	303	1148886910	6045940800	0.19003
2320	39.82	0.0082	600,319	0.24	303	1392544061	6045940800	0.23033
2735	63.10	0.0082	600,319	0.24	303	1641561848	6045940800	0.27151
3122	100	0.0082	600,319	0.24	303	1873703656	6045940800	0.30991

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.0082	141.8	600,319	851203	6045940800	0.00014
0.0159	0.0082	141.8	600,319	1349157	6045940800	0.00022
0.0251	0.0082	141.8	600,319	2138222	6045940800	0.00035
0.0398	0.0082	141.8	600,319	3388640	6045940800	0.00056
0.0631	0.0082	141.8	600,319	5371092	6045940800	0.00089
0.1	0.0082	141.8	600,319	8512031	6045940800	0.00141
0.1585	0.0082	141.8	600,319	13491569	6045940800	0.00223
0.2512	0.0082	141.8	600,319	21382222	6045940800	0.00354
0.3981	0.0082	141.8	600,319	33886396	6045940800	0.00560
0.6310	0.0082	141.8	600,319	53710917	6045940800	0.00888
1	0.0082	141.8	600,319	85120312	6045940800	0.01408
1.585	0.0082	141.8	600,319	134915694	6045940800	0.02232
2.512	0.0082	141.8	600,319	213822223	6045940800	0.03537
3.981	0.0082	141.8	600,319	338863960	6045940800	0.05605
6.310	0.0082	141.8	600,319	537109166	6045940800	0.08884
10	0.0082	141.8	600,319	851203116	6045940800	0.14079
15.85	0.0082	141.8	600,319	1349156939	6045940800	0.22315
25.12	0.0082	141.8	600,319	2138222227	6045940800	0.35366
39.82	0.0082	141.8	600,319	3389490807	6045940800	0.56062
63.10	0.0082	141.8	600,319	5371091661	6045940800	0.88838
100	0.0082	141.8	600,319	8512031158	6045940800	1.40789

(iii) PEO 8 g/dL – HTAC 16 g/dL (c_s/c_p = 2.0) in water at 40°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η^* (poise)
0.01	1.064	6.200	629.1
0.0159	2.808	7.717	518.1
0.0251	8.661	16.40	738.4
0.0398	0.876	13.35	336.1
0.0631	1.913	21.15	336.5
0.1	8.317	33.03	340.6
0.1585	8.653	53.61	342.6
0.2512	16.77	79.71	324.3
0.3981	25.19	119.3	306.3
0.6310	43.82	175.2	286.2
1	75.24	254.7	265.6
1.585	126.7	363.9	243.1
2.512	209.6	508.4	218.9
3.981	333.9	695.9	193.9
6.310	518.7	930.9	168.9
10	778.1	1217	144.5
15.85	1129	1557	121.3
25.12	1599	1950	100.4
39.82	2216	2384	81.73
63.10	3000	2826	65.32
100	3961	3249	51.23

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
1.064	600,319	0.24	313	638739	6245476800	0.00010
2.808	600,319	0.24	313	1685696	6245476800	0.00027
8.661	600,319	0.24	313	5199363	6245476800	0.00083
0.876	600,319	0.24	313	525699	6245476800	0.00008
1.913	600,319	0.24	313	1148410	6245476800	0.00018
8.317	600,319	0.24	313	4992853	6245476800	0.00080
8.653	600,319	0.24	313	5194560	6245476800	0.00083
16.77	600,319	0.24	313	10067350	6245476800	0.00161
25.19	600,319	0.24	313	15122036	6245476800	0.00242
43.82	600,319	0.24	313	26305979	6245476800	0.00421
75.24	600,319	0.24	313	45168002	6245476800	0.00723
126.7	600,319	0.24	313	76060417	6245476800	0.01218
209.6	600,319	0.24	313	125826862	6245476800	0.02015
333.9	600,319	0.24	313	200446514	6245476800	0.03209
518.7	600,319	0.24	313	311385465	6245476800	0.04986
778.1	600,319	0.24	313	467108214	6245476800	0.07479
1129	600,319	0.24	313	677760151	6245476800	0.10852
1599	600,319	0.24	313	959910081	6245476800	0.15370
2216	600,319	0.24	313	1330306904	6245476800	0.21300
3000	600,319	0.24	313	1800957000	6245476800	0.28836
3961	600,319	0.24	313	2377863559	6245476800	0.38073

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - $\omega\eta_s$)M	cRT	(G" - $\omega\eta_s$)M/cRT
6.200	0.01	0.0068	600,319	0.24	313	3721937	6245476800	0.00060
7.717	0.0159	0.0068	600,319	0.24	313	4632597	6245476800	0.00074
16.40	0.0251	0.0068	600,319	0.24	313	9845129	6245476800	0.00158
13.35	0.0398	0.0068	600,319	0.24	313	8014096	6245476800	0.00128
21.15	0.0631	0.0068	600,319	0.24	313	12696489	6245476800	0.00203
33.03	0.1	0.0068	600,319	0.24	313	19828128	6245476800	0.00317
53.61	0.1585	0.0068	600,319	0.24	313	32182455	6245476800	0.00515
79.71	0.2512	0.0068	600,319	0.24	313	47850402	6245476800	0.00766
119.3	0.3981	0.0068	600,319	0.24	313	71616432	6245476800	0.01147
175.2	0.6310	0.0068	600,319	0.24	313	105173313	6245476800	0.01684
254.7	1	0.0068	600,319	0.24	313	152897167	6245476800	0.02448
363.9	1.585	0.0068	600,319	0.24	313	218449614	6245476800	0.03498
508.4	2.512	0.0068	600,319	0.24	313	305191925	6245476800	0.04887
695.9	3.981	0.0068	600,319	0.24	313	417745741	6245476800	0.06689
930.9	6.310	0.0068	600,319	0.24	313	558811199	6245476800	0.08947
1217	10	0.0068	600,319	0.24	313	730547401	6245476800	0.11697
1557	15.85	0.0068	600,319	0.24	313	934631981	6245476800	0.14965
1950	25.12	0.0068	600,319	0.24	313	1170519506	6245476800	0.18742
2384	39.82	0.0068	600,319	0.24	313	1430997944	6245476800	0.22913
2826	63.10	0.0068	600,319	0.24	313	1696243909	6245476800	0.27160
3249	100	0.0068	600,319	0.24	313	1950028214	6245476800	0.31223

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0-\eta_s)M/cRT$
0.01	0.0068	133.4	600,319	800785	6245476800	0.00013
0.0159	0.0068	133.4	600,319	1269244	6245476800	0.00020
0.0251	0.0068	133.4	600,319	2011571	6245476800	0.00032
0.0398	0.0068	133.4	600,319	3187924	6245476800	0.00051
0.0631	0.0068	133.4	600,319	5052952	6245476800	0.00081
0.1	0.0068	133.4	600,319	8007847	6245476800	0.00128
0.1585	0.0068	133.4	600,319	12692438	6245476800	0.00203
0.2512	0.0068	133.4	600,319	20115712	6245476800	0.00322
0.3981	0.0068	133.4	600,319	31879240	6245476800	0.00510
0.6310	0.0068	133.4	600,319	50529516	6245476800	0.00809
1	0.0068	133.4	600,319	80078472	6245476800	0.01282
1.585	0.0068	133.4	600,319	126924379	6245476800	0.02032
2.512	0.0068	133.4	600,319	201157123	6245476800	0.03221
3.981	0.0068	133.4	600,319	318792399	6245476800	0.05104
6.310	0.0068	133.4	600,319	505295161	6245476800	0.08091
10	0.0068	133.4	600,319	800784724	6245476800	0.12822
15.85	0.0068	133.4	600,319	1269243788	6245476800	0.20323
25.12	0.0068	133.4	600,319	2011571227	6245476800	0.32208
39.82	0.0068	133.4	600,319	3188724772	6245476800	0.51057
63.10	0.0068	133.4	600,319	5052951610	6245476800	0.80906
100	0.0068	133.4	600,319	8007847243	6245476800	1.28218

(iv) PEO 8 g/dL – HTAC 16 g/dL (c_s/c_p = 2.0) in water at 50°C (Strain = 10%)

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η^* (poise)
0.01	1.103	5.831	593.4
0.0159	5.768	16.42	1098
0.0251	13.36	30.11	1311
0.0398	23.75	48.70	1361
0.0631	36.79	71.22	1270
0.1	53.56	99.39	1129
0.1585	75.00	136.6	983.0
0.2512	103.7	183.1	837.5
0.3981	142.4	244.2	710.1
0.6310	192.7	326.5	600.9
1	265.1	433.1	507.8
1.585	363.1	569.1	425.9
2.512	496.6	744.2	356.2
3.981	680.7	959.6	295.5
6.310	927.6	1226	243.7
10	1255	1545	199.0
15.85	1684	1917	161.0
25.12	2245	2337	129.0
39.82	2959	2791	102.2
63.10	3865	3247	80.00
100	4951	3657	61.55

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
1.103	600,319	0.24	323	662152	6445012800	0.00010
5.768	600,319	0.24	323	3462640	6445012800	0.00054
13.36	600,319	0.24	323	8020262	6445012800	0.00124
23.75	600,319	0.24	323	14257576	6445012800	0.00221
36.79	600,319	0.24	323	22085736	6445012800	0.00343
53.56	600,319	0.24	323	32153086	6445012800	0.00499
75.00	600,319	0.24	323	45023925	6445012800	0.00699
103.7	600,319	0.24	323	62253080	6445012800	0.00966
142.4	600,319	0.24	323	85485426	6445012800	0.01326
192.7	600,319	0.24	323	115681471	6445012800	0.01795
265.1	600,319	0.24	323	159144567	6445012800	0.02469
363.1	600,319	0.24	323	217975829	6445012800	0.03382
496.6	600,319	0.24	323	298118415	6445012800	0.04626
680.7	600,319	0.24	323	408637143	6445012800	0.06340
927.6	600,319	0.24	323	556855904	6445012800	0.08640
1255	600,319	0.24	323	753400345	6445012800	0.11690
1684	600,319	0.24	323	1010937196	6445012800	0.15686
2245	600,319	0.24	323	1347716155	6445012800	0.20911
2959	600,319	0.24	323	1776343921	6445012800	0.27562
3865	600,319	0.24	323	2320232935	6445012800	0.36000
4951	600,319	0.24	323	2972179369	6445012800	0.46116

G" (dyne/cm^2)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - $\omega\eta_s$)M	cRT	(G" - $\omega\eta_s$)M/cRT
5.831	0.01	0.0057	600,319	0.24	323	3500426	6445012800	0.00054
16.42	0.0159	0.0057	600,319	0.24	323	9857184	6445012800	0.00153
30.11	0.0251	0.0057	600,319	0.24	323	18075519	6445012800	0.00280
48.70	0.0398	0.0057	600,319	0.24	323	29235399	6445012800	0.00454
71.22	0.0631	0.0057	600,319	0.24	323	42754503	6445012800	0.00663
99.39	0.1	0.0057	600,319	0.24	323	59665363	6445012800	0.00926
136.6	0.1585	0.0057	600,319	0.24	323	82003033	6445012800	0.01272
183.1	0.2512	0.0057	600,319	0.24	323	109917549	6445012800	0.01705
244.2	0.3981	0.0057	600,319	0.24	323	146596538	6445012800	0.02275
326.5	0.6310	0.0057	600,319	0.24	323	196001994	6445012800	0.03041
433.1	1	0.0057	600,319	0.24	323	259994737	6445012800	0.04034
569.1	1.585	0.0057	600,319	0.24	323	341636119	6445012800	0.05301
744.2	2.512	0.0057	600,319	0.24	323	446748804	6445012800	0.06932
959.6	3.981	0.0057	600,319	0.24	323	576052490	6445012800	0.08938
1226	6.310	0.0057	600,319	0.24	323	735969502	6445012800	0.11419
1545	10	0.0057	600,319	0.24	323	927458637	6445012800	0.14390
1917	15.85	0.0057	600,319	0.24	323	1150757287	6445012800	0.17855
2337	25.12	0.0057	600,319	0.24	323	1402859547	6445012800	0.21767
2791	39.82	0.0057	600,319	0.24	323	1675354072	6445012800	0.25995
3247	63.10	0.0057	600,319	0.24	323	1949019876	6445012800	0.30241
3657	100	0.0057	600,319	0.24	323	2195024401	6445012800	0.34058

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	$\omega(\eta_0 - \eta_s)M$	cRT	$\omega(\eta_0 - \eta_s)M/cRT$
0.01	0.0057	152	600,319	912451	6445012800	0.00014
0.0159	0.0057	152	600,319	1446234	6445012800	0.00022
0.0251	0.0057	152	600,319	2292076	6445012800	0.00036
0.0398	0.0057	152	600,319	3632466	6445012800	0.00056
0.0631	0.0057	152	600,319	5757564	6445012800	0.00089
0.1	0.0057	152	600,319	9124507	6445012800	0.00142
0.1585	0.0057	152	600,319	14462343	6445012800	0.00224
0.2512	0.0057	152	600,319	22920761	6445012800	0.00356
0.3981	0.0057	152	600,319	36324661	6445012800	0.00564
0.6310	0.0057	152	600,319	57575637	6445012800	0.00893
1	0.0057	152	600,319	91245066	6445012800	0.01416
1.585	0.0057	152	600,319	144623430	6445012800	0.02244
2.512	0.0057	152	600,319	229207606	6445012800	0.03556
3.981	0.0057	152	600,319	363246608	6445012800	0.05636
6.310	0.0057	152	600,319	575756368	6445012800	0.08933
10	0.0057	152	600,319	912450662	6445012800	0.14157
15.85	0.0057	152	600,319	1446234299	6445012800	0.22440
25.12	0.0057	152	600,319	2292076062	6445012800	0.35564
39.82	0.0057	152	600,319	3633378535	6445012800	0.56375
63.10	0.0057	152	600,319	5757563676	6445012800	0.89334
100	0.0057	152	600,319	9124506618	6445012800	1.41575
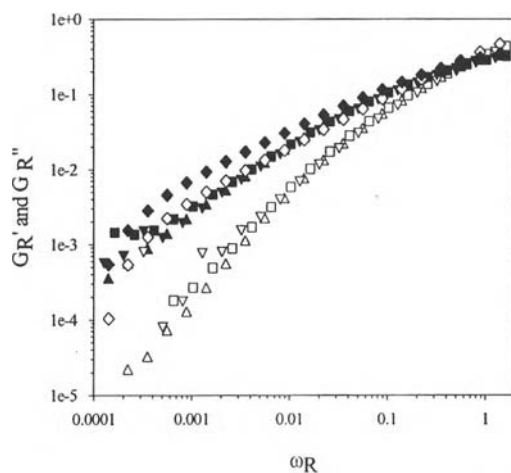
Figure 6.3 The reduced moduli (G_R' and G_R") as a function of reduced frequency (ω_R) for PEO (8 g/dL)-HTAC (16 g/dL) (c_s/c_p = 2.0) at different temperatures: (□) 20°C; (Δ) 30°C; (∇) 40°C; and (◊) 50°C. The open symbols refer to G_R' and the closed symbols represent G_R".
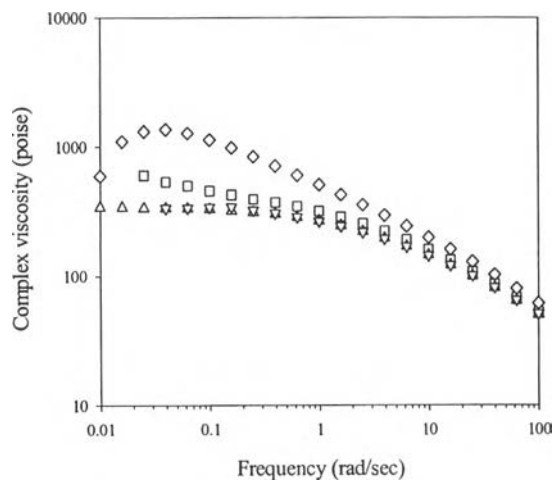

Figure 6.4 The complex viscosity as a function of frequency for PEO-HTAC at c_s/c_p = 2.0 at different temperatures.

6.2 Effect of salt

6.2.1 PEO 4 g/dL-HTAC 6g/dL in 0.1 M KNO₃ solution

(i) PEO 4 g/dL – HTAC 6 g/dL (c_s/c_p = 1.5) in 0.1 M KNO₃ at 10°C

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.1	0	1.19	11.85
0.159	0.02	1.66	10.44
0.251	0.06	2.61	10.40
0.398	0.16	4.12	10.34
0.631	0.26	6.63	10.52
1	0.53	10.47	10.49
1.585	1.23	16.43	10.39
2.512	2.55	25.42	10.17
3.981	5.37	39.30	9.96
6.310	11.03	59.70	9.62
10	21.09	88.67	9.11
15.85	38.70	129.00	8.50
25.12	67.25	182.90	7.76
39.81	111.7	253.60	6.96
63.10	177.7	344.40	6.14
100	271.6	455.60	5.30

Figure is shown in Section 4.6.2.

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G'$_R$ = G' M/cRT
0	600,319	0.1	283	0	2352862000	0
0.02	600,319	0.1	283	13699	2352862000	0.00001
0.06	600,319	0.1	283	37412	2352862000	0.00002
0.16	600,319	0.1	283	93049	2352862000	0.00004
0.26	600,319	0.1	283	158964	2352862000	0.00007
0.53	600,319	0.1	283	319130	2352862000	0.00014
1.23	600,319	0.1	283	736591	2352862000	0.00031
2.55	600,319	0.1	283	1527812	2352862000	0.00065
5.37	600,319	0.1	283	3221312	2352862000	0.00137
11.03	600,319	0.1	283	6621519	2352862000	0.00281
21.09	600,319	0.1	283	12660728	2352862000	0.00538
38.70	600,319	0.1	283	23232345	2352862000	0.00987
67.25	600,319	0.1	283	40371453	2352862000	0.01716
111.7	600,319	0.1	283	67055632	2352862000	0.02850
177.7	600,319	0.1	283	106676686	2352862000	0.04534
271.6	600,319	0.1	283	163046640	2352862000	0.06930

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
1.19	0.1	0.0115	600,319	0.1	283	710688	2352862000	0.00030
1.66	0.159	0.0115	600,319	0.1	283	992434	2352862000	0.00042
2.61	0.251	0.0115	600,319	0.1	283	1565699	2352862000	0.00067
4.12	0.398	0.0115	600,319	0.1	283	2467564	2352862000	0.00105
6.63	0.631	0.0115	600,319	0.1	283	3976959	2352862000	0.00169
10.47	1	0.0115	600,319	0.1	283	6278436	2352862000	0.00267
16.43	1.585	0.0115	600,319	0.1	283	9852299	2352862000	0.00419
25.42	2.512	0.0115	600,319	0.1	283	15242767	2352862000	0.00648
39.30	3.981	0.0115	600,319	0.1	283	23565053	2352862000	0.01002
59.70	6.310	0.0115	600,319	0.1	283	35795482	2352862000	0.01521
88.67	10	0.0115	600,319	0.1	283	53161249	2352862000	0.02259
129.0	15.85	0.0115	600,319	0.1	283	77331728	2352862000	0.03287
182.9	25.12	0.0115	600,319	0.1	283	109624925	2352862000	0.04659
253.6	39.81	0.0115	600,319	0.1	283	151966063	2352862000	0.06459
344.4	63.10	0.0115	600,319	0.1	283	206314242	2352862000	0.08769
455.6	100	0.0115	600,319	0.1	283	272814970	2352862000	0.11595

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η$_0$ - η$_s$)M	cRT	ω(η$_0$-η$_s$)M/cRT
0.1	0.0115	8.88	600,319	532393	2352862000	0.00023
0.159	0.0115	8.88	600,319	843843	2352862000	0.00036
0.251	0.0115	8.88	600,319	1337371	2352862000	0.00057
0.398	0.0115	8.88	600,319	2119456	2352862000	0.00090
0.631	0.0115	8.88	600,319	3359399	2352862000	0.00143
1	0.0115	8.88	600,319	5323929	2352862000	0.00226
1.585	0.0115	8.88	600,319	8438428	2352862000	0.00359
2.512	0.0115	8.88	600,319	13373710	2352862000	0.00568
3.981	0.0115	8.88	600,319	21194562	2352862000	0.00901
6.310	0.0115	8.88	600,319	33593992	2352862000	0.01428
10	0.0115	8.88	600,319	53239291	2352862000	0.02263
15.85	0.0115	8.88	600,319	84384275	2352862000	0.03586
25.12	0.0115	8.88	600,319	133737098	2352862000	0.05684
39.81	0.0115	8.88	600,319	211945616	2352862000	0.09008
63.10	0.0115	8.88	600,319	335939923	2352862000	0.14278
100	0.0115	8.88	600,319	532392905	2352862000	0.22627

(ii) PEO 4 g/dL – HTAC 6 g/dL (c_s/c_p = 1.5) in 0.1 M KNO_3 at 20°C

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.1	0.00	0.64	6.39
0.159	0.02	1.01	6.34
0.251	0.00	1.64	6.53
0.398	0.01	2.68	6.72
0.631	0.09	4.22	6.69
1	0.17	6.69	6.69
1.585	0.47	10.61	6.70
2.512	0.95	16.51	6.58
3.981	2.49	26.06	6.58
6.310	5.32	40.11	6.41
10	10.89	61.01	6.20
15.85	21.45	91.08	5.90
25.12	39.61	132.80	5.52
39.81	69.67	189.30	5.07
63.10	116.5	263.90	4.57
100	185.9	357.40	4.03

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0.0000	600,319	0.1	293	0	2436002000	00.00000
0.021	600,319	0.1	293	12667	2436002000	0.00001
0.0000	600,319	0.1	293	0	2436002000	0.00000
0.007	600,319	0.1	293	4011	2436002000	0.00000
0.094	600,319	0.1	293	56268	2436002000	0.00002
0.169	600,319	0.1	293	101514	2436002000	0.00004
0.465	600,319	0.1	293	279328	2436002000	0.00011
0.951	600,319	0.1	293	570963	2436002000	0.00023
2.491	600,319	0.1	293	1495395	2436002000	0.00061
5.324	600,319	0.1	293	3196098	2436002000	0.00131
10.89	600,319	0.1	293	6537474	2436002000	0.00268
21.45	600,319	0.1	293	12876843	2436002000	0.00529
39.61	600,319	0.1	293	23778636	2436002000	0.00976
69.67	600,319	0.1	293	41824225	2436002000	0.01717
116.5	600,319	0.1	293	69937164	2436002000	0.02871
185.9	600,319	0.1	293	111599302	2436002000	0.04581

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη_s)M	cRT	(G" - ωη_s)M/cRT
0.639	0.1	0.01	600,319	0.1	293	382763	2436002000	0.00016
1.005	0.159	0.01	600,319	0.1	293	602369	2436002000	0.00025
1.641	0.251	0.01	600,319	0.1	293	983615	2436002000	0.00040
2.675	0.398	0.01	600,319	0.1	293	1603463	2436002000	0.00066
4.219	0.631	0.01	600,319	0.1	293	2528958	2436002000	0.00104
6.692	1	0.01	600,319	0.1	293	4011332	2436002000	0.00165
10.61	1.585	0.01	600,319	0.1	293	6359870	2436002000	0.00261
16.51	2.512	0.01	600,319	0.1	293	9896187	2436002000	0.00406
26.06	3.981	0.01	600,319	0.1	293	15620414	2436002000	0.00641
40.11	6.310	0.01	600,319	0.1	293	24040915	2436002000	0.00987
61.01	10	0.01	600,319	0.1	293	36565430	2436002000	0.01501
91.08	15.85	0.01	600,319	0.1	293	54581904	2436002000	0.02241
132.8	25.12	0.01	600,319	0.1	293	79571563	2436002000	0.03266
189.3	39.81	0.01	600,319	0.1	293	113401400	2436002000	0.04655
263.9	63.10	0.01	600,319	0.1	293	158045383	2436002000	0.06488
357.4	100	0.01	600,319	0.1	293	213953692	2436002000	0.08783

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η_0 - η_s)M	cRT	ω(η_0-η_s)M/cRT
0.1	0.01	6.21	600,319	372198	2436002000	0.00015
0.159	0.01	6.21	600,319	589933	2436002000	0.00024
0.251	0.01	6.21	600,319	934961	2436002000	0.00038
0.398	0.01	6.21	600,319	1481719	2436002000	0.00061
0.631	0.01	6.21	600,319	2348568	2436002000	0.00096
1	0.01	6.21	600,319	3721978	2436002000	0.00153
1.585	0.01	6.21	600,319	5899335	2436002000	0.00242
2.512	0.01	6.21	600,319	9349608	2436002000	0.00384
3.981	0.01	6.21	600,319	14817194	2436002000	0.00608
6.310	0.01	6.21	600,319	23485680	2436002000	0.00964
10	0.01	6.21	600,319	37219778	2436002000	0.01528
15.85	0.01	6.21	600,319	58993348	2436002000	0.02422
25.12	0.01	6.21	600,319	93496082	2436002000	0.03838
39.81	0.01	6.21	600,319	148171936	2436002000	0.06083
63.10	0.01	6.21	600,319	234856799	2436002000	0.09641
100	0.01	6.21	600,319	372197780	2436002000	0.15279

(iii) PEO 4 g/dL – HTAC 6 g/dL (c_s/c_p = 1.5) in 0.1 M KNO_3 at 30°C

ω (rad/s)	G' (dyne/cm²)	G" (dyne/cm²)	η* (poise)
0.1	0	1.58	15.82
0.159	0.19	1.95	12.35
0.251	0.19	3.26	12.99
0.398	0.17	5.06	12.71
0.631	0.39	8.01	12.71
1	0.89	12.52	12.55
1.585	1.73	19.49	12.34
2.512	3.51	30.03	12.04
3.981	6.87	46.01	11.69
6.310	13.91	69.13	11.18
10	25.87	102.50	10.57
15.85	46.87	148.20	9.81
25.12	80.13	209.60	8.93
39.81	131.9	289.60	7.99
63.10	208.6	391.50	7.03
100	316.5	516.30	6.06

G' (dyne/cm²)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G' M/cRT
0	600,319	0.1	303	0	2519142000	0.00000
0.191	600,319	0.1	303	114661	2519142000	0.00005
0.190	600,319	0.1	303	114001	2519142000	0.00005
0.170	600,319	0.1	303	101754	2519142000	0.00004
0.392	600,319	0.1	303	235505	2519142000	0.00009
0.887	600,319	0.1	303	532423	2519142000	0.00021
1.734	600,319	0.1	303	1040953	2519142000	0.00041
3.511	600,319	0.1	303	2107720	2519142000	0.00084
6.866	600,319	0.1	303	4121790	2519142000	0.00164
13.91	600,319	0.1	303	8350437	2519142000	0.00331
25.87	600,319	0.1	303	15530253	2519142000	0.00616
46.87	600,319	0.1	303	28136952	2519142000	0.01117
80.13	600,319	0.1	303	48103561	2519142000	0.01910
131.9	600,319	0.1	303	79182076	2519142000	0.03143
208.6	600,319	0.1	303	125226543	2519142000	0.04971
316.5	600,319	0.1	303	190000964	2519142000	0.07542

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη_s)M	cRT	(G" - ωη_s)M/cRT
1.58	0.1	0.01	600,319	0.1	303	949104	2519142000	0.00038
1.95	0.159	0.01	600,319	0.1	303	1168470	2519142000	0.00046
3.26	0.251	0.01	600,319	0.1	303	1954331	2519142000	0.00078
5.06	0.398	0.01	600,319	0.1	303	3034024	2519142000	0.00120
8.01	0.631	0.01	600,319	0.1	303	4803567	2519142000	0.00191
12.52	1	0.01	600,319	0.1	303	7509991	2519142000	0.00298
19.49	1.59	0.01	600,319	0.1	303	11690702	2519142000	0.00464
30.03	2.51	0.01	600,319	0.1	303	18012500	2519142000	0.00715
46.01	3.98	0.01	600,319	0.1	303	27596778	2519142000	0.01095
69.13	6.31	0.01	600,319	0.1	303	41462172	2519142000	0.01646
102.5	10	0.01	600,319	0.1	303	61472666	2519142000	0.02440
148.2	15.85	0.01	600,319	0.1	303	88872125	2519142000	0.03528
209.6	25.12	0.01	600,319	0.1	303	125676062	2519142000	0.04989
289.6	39.81	0.01	600,319	0.1	303	173613395	2519142000	0.06892
391.5	63.10	0.01	600,319	0.1	303	234646087	2519142000	0.09315
516.3	100	0.01	600,319	0.1	303	309344381	2519142000	0.12280

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η_0 - η_s)M	cRT	ω(η_0-η_s)M/cRT
0.1	0.0082	12.02	600,319	721091	2519142000	0.00029
0.159	0.0082	12.02	600,319	1142930	2519142000	0.00045
0.251	0.0082	12.02	600,319	1811381	2519142000	0.00072
0.398	0.0082	12.02	600,319	2870664	2519142000	0.00114
0.631	0.0082	12.02	600,319	4550085	2519142000	0.00181
1	0.0082	12.02	600,319	7210912	2519142000	0.00286
1.585	0.0082	12.02	600,319	11429295	2519142000	0.00454
2.512	0.0082	12.02	600,319	18113810	2519142000	0.00719
3.981	0.0082	12.02	600,319	28706640	2519142000	0.01140
6.310	0.0082	12.02	600,319	45500853	2519142000	0.01806
10	0.0082	12.02	600,319	72109118	2519142000	0.02862
15.85	0.0082	12.02	600,319	114292951	2519142000	0.04537
25.12	0.0082	12.02	600,319	181138104	2519142000	0.07190
39.82	0.0082	12.02	600,319	287138506	2519142000	0.11398
63.10	0.0082	12.02	600,319	455008532	2519142000	0.18062
100	0.0082	12.02	600,319	721091176	2519142000	0.28624

(iv) PEO 4 g/dL – HTAC 6 g/dL (c_s/c_p = 1.5) in 0.1 M KNO$_3$ at 40°C

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η* (poise)
0.1	2.87	6.38	69.98
0.159	5.13	10.54	73.93
0.251	7.76	15.59	69.31
0.398	11.17	22.01	62.00
0.631	15.46	30.38	54.02
1	20.90	41.05	46.06
1.585	28.24	55.05	39.04
2.512	38.40	74.19	33.26
3.981	52.21	99.65	28.26
6.310	71.56	133.3	23.98
10	99.19	177.8	20.36
15.85	137.3	235.7	17.21
25.12	190.9	309.3	14.47
39.81	265.8	402.5	12.12
63.10	370.0	518.6	10.10
100	513.7	660.6	8.368

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	G'$_R$ = G' M/cRT
2.87	600,319	0.1	313	1725317	2602282000	0.00066
5.13	600,319	0.1	313	3079036	2602282000	0.00118
7.76	600,319	0.1	313	4660276	2602282000	0.00179
11.17	600,319	0.1	313	6705563	2602282000	0.00258
15.46	600,319	0.1	313	9280932	2602282000	0.00357
20.90	600,319	0.1	313	12546667	2602282000	0.00482
28.24	600,319	0.1	313	16953009	2602282000	0.00651
38.40	600,319	0.1	313	23052250	2602282000	0.00886
52.21	600,319	0.1	313	31342655	2602282000	0.01204
71.56	600,319	0.1	313	42958828	2602282000	0.01651
99.19	600,319	0.1	313	59545642	2602282000	0.02288
137.3	600,319	0.1	313	82423799	2602282000	0.03167
190.9	600,319	0.1	313	114600897	2602282000	0.04404
265.8	600,319	0.1	313	159564790	2602282000	0.06132
370.0	600,319	0.1	313	222118030	2602282000	0.08536
513.7	600,319	0.1	313	308383870	2602282000	0.11851

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
6.380	0.1	0.0068	600,319	0.1	313	3829627	2602282000	0.00147
10.54	0.159	0.0068	600,319	0.1	313	6326715	2602282000	0.00243
15.59	0.251	0.0068	600,319	0.1	313	9357948	2602282000	0.00360
22.01	0.398	0.0068	600,319	0.1	313	13211396	2602282000	0.00508
30.38	0.631	0.0068	600,319	0.1	313	18235115	2602282000	0.00701
41.05	1	0.0068	600,319	0.1	313	24639013	2602282000	0.00947
55.05	1.585	0.0068	600,319	0.1	313	33041091	2602282000	0.01270
74.19	2.512	0.0068	600,319	0.1	313	44527412	2602282000	0.01711
99.65	3.981	0.0068	600,319	0.1	313	59805537	2602282000	0.02298
133.3	6.310	0.0068	600,319	0.1	313	79996764	2602282000	0.03074
177.8	10	0.0068	600,319	0.1	313	106695897	2602282000	0.04100
235.7	15.85	0.0068	600,319	0.1	313	141430486	2602282000	0.05435
309.3	25.12	0.0068	600,319	0.1	313	185576123	2602282000	0.07131
402.5	39.81	0.0068	600,319	0.1	313	241465886	2602282000	0.09279
518.6	63.10	0.0068	600,319	0.1	313	311067849	2602282000	0.11954
660.6	100	0.0068	600,319	0.1	313	396162514	2602282000	0.15224

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η$_0$ - η$_s$)M	cRT	ω(η$_0$-η$_s$)M/cRT
0.1	0.0068	21.53	600,319	1292078.59	2602282000	0.00050
0.159	0.0068	21.53	600,319	2047944.57	2602282000	0.00079
0.251	0.0068	21.53	600,319	3245701.4	2602282000	0.00125
0.398	0.0068	21.53	600,319	5143764.9	2602282000	0.00198
0.631	0.0068	21.53	600,319	8153016	2602282000	0.00313
1	0.0068	21.53	600,319	12920786	2602282000	0.00497
1.585	0.0068	21.53	600,319	20479446	2602282000	0.00787
2.512	0.0068	21.53	600,319	32457014	2602282000	0.01247
3.981	0.0068	21.53	600,319	51437649	2602282000	0.01977
6.310	0.0068	21.53	600,319	81530159	2602282000	0.03133
10	0.0068	21.53	600,319	129207859	2602282000	0.04965
15.85	0.0068	21.53	600,319	204794457	2602282000	0.07870
25.12	0.0068	21.53	600,319	324570142	2602282000	0.12473
39.81	0.0068	21.53	600,319	514376487	2602282000	0.19766
63.10	0.0068	21.53	600,319	815301590	2602282000	0.31330
100	0.0068	21.53	600,319	1292078590	2602282000	0.49652

(v) PEO 4 g/dL – HTAC 6 g/dL ($c_s/c_p = 1.5$) in 0.1 M KNO_3 at 50°C

ω (rad/s)	G' (dyne/cm^2)	G" (dyne/cm^2)	η^* (poise)
0.1	19.84	27.94	342.6
0.159	36.14	47.09	374.5
0.251	53.32	64.30	332.6
0.398	70.81	82.43	273.0
0.631	92.41	103.9	220.4
1	117.3	127.4	173.2
1.585	147.0	153.8	134.2
2.512	181.3	184.6	103.0
3.981	221.8	220.6	78.57
6.310	268.8	262.7	59.56
10	323.9	313.4	45.07
15.85	390.9	374.7	34.16
25.12	470.5	447.4	25.85
39.81	571.5	538.1	19.72
63.10	702.2	651.6	15.18
100	877.3	791.8	11.82

G' (dyne/cm^2)	M (g/mol)	c (g/mL)	T (K)	G'M	cRT	$G'_R = $ G' M/cRT
19.84	600,319	0.1	323	11910329	2685422000	0.00444
36.14	600,319	0.1	323	21695529	2685422000	0.00808
53.32	600,319	0.1	323	32009009	2685422000	0.01192
70.81	600,319	0.1	323	42508588	2685422000	0.01583
92.41	600,319	0.1	323	55475479	2685422000	0.02066
117.3	600,319	0.1	323	70417419	2685422000	0.02622
147.0	600,319	0.1	323	88246893	2685422000	0.03286
181.3	600,319	0.1	323	108837835	2685422000	0.04053
221.8	600,319	0.1	323	133150754	2685422000	0.04958
268.8	600,319	0.1	323	161365747	2685422000	0.06009
323.9	600,319	0.1	323	194443324	2685422000	0.07241
390.9	600,319	0.1	323	234664697	2685422000	0.08738
470.5	600,319	0.1	323	282450090	2685422000	0.10518
571.5	600,319	0.1	323	343082309	2685422000	0.12776
702.2	600,319	0.1	323	421544002	2685422000	0.15697
877.3	600,319	0.1	323	526659859	2685422000	0.19612

G" (dyne/cm²)	ω (rad/s)	η_s (poise)	M (g/mol)	c (g/mL)	T (K)	(G" - ωη$_s$)M	cRT	(G" - ωη$_s$)M/cRT
27.94	0.1	0.0068	600,319	0.1	323	16772505	2685422000	0.00625
47.09	0.159	0.0068	600,319	0.1	323	28268375	2685422000	0.01053
64.30	0.251	0.0068	600,319	0.1	323	38599486	2685422000	0.01437
82.43	0.398	0.0068	600,319	0.1	323	49482670	2685422000	0.01843
103.9	0.631	0.0068	600,319	0.1	323	62370568	2685422000	0.02323
127.4	1	0.0068	600,319	0.1	323	76476558	2685422000	0.02848
153.8	1.585	0.0068	600,319	0.1	323	92322592	2685422000	0.03438
184.6	2.512	0.0068	600,319	0.1	323	110808633	2685422000	0.04126
220.6	3.981	0.0068	600,319	0.1	323	132414120	2685422000	0.04931
262.7	6.310	0.0068	600,319	0.1	323	157678043	2685422000	0.05872
313.4	10	0.0068	600,319	0.1	323	188099153	2685422000	0.07004
374.7	15.85	0.0068	600,319	0.1	323	224874827	2685422000	0.08374
447.4	25.12	0.0068	600,319	0.1	323	268480177	2685422000	0.09998
538.1	39.81	0.0068	600,319	0.1	323	322869143	2685422000	0.12023
651.6	63.10	0.0068	600,319	0.1	323	390910276	2685422000	0.14557
791.8	100	0.0068	600,319	0.1	323	474924367	2685422000	0.17685

ω (rad/s)	η_s (poise)	η_0 (poise)	M (g/mol)	ω(η$_0$ - η$_s$)M	cRT	ω(η$_0$-η$_s$)M/cRT
0.1	0.0068	25.07	600,319	1504591.52	2602282000	0.00058
0.159	0.0068	25.07	600,319	2384777.55	2602282000	0.00092
0.251	0.0068	25.07	600,319	3779533.9	2602282000	0.00145
0.398	0.0068	25.07	600,319	5989778.8	2602282000	0.00230
0.631	0.0068	25.07	600,319	9493972	2602282000	0.00365
1	0.0068	25.07	600,319	15045915	2602282000	0.00578
1.585	0.0068	25.07	600,319	23847776	2602282000	0.00916
2.512	0.0068	25.07	600,319	37795339	2602282000	0.01452
3.981	0.0068	25.07	600,319	59897788	2602282000	0.02302
6.310	0.0068	25.07	600,319	94939725	2602282000	0.03648
10	0.0068	25.07	600,319	150459152	2602282000	0.05782
15.85	0.0068	25.07	600,319	238477755	2602282000	0.09164
25.12	0.0068	25.07	600,319	377953389	2602282000	0.14524
39.81	0.0068	25.07	600,319	598977883	2602282000	0.23017
63.10	0.0068	25.07	600,319	949397247	2602282000	0.36483
100	0.0068	25.07	600,319	1504591516	2602282000	0.57818

Appendix - 7

Investigation of HPC-CADG Interaction

<u>7.1 Data from surface tension measurement</u>

7.1.1 Effect of pH on pure amphoteric surfactant solution

(i) CADG solution at pH = 6

c_{CADG} (mM)	γ (mN/m)	γ (mN/m)	γ (mN/m)	Std. deviation
0	66.0	68.1	70.5	± 2.25
0.01	51.7	52.5	53.4	± 0.85
0.04	45.3	47.2	42.7	± 2.26
0.08	38.9	42.6	39.4	± 2.01
0.12	34.6	35.8	39.7	± 2.67
0.2	32.1	35.5	32.4	± 1.88
0.3	32.6	31.3	31.0	± 0.85
0.4	29.2	30.5	29.5	± 0.68
0.6	29.2	29.7	29.5	± 0.25
1.0	29.1	29.5	29.7	± 0.31
2.0	29.7	29.5	29.0	± 0.36

(ii) CADG solution at pH = 8

c_{CADG} (mM)	γ (mN/m)	γ (mN/m)	γ (mN/m)	Std. deviation
0.01	59.6	57.3	53.7	± 2.97
0.04	48.8	43.4	44.9	± 2.79
0.08	42.7	40.5	37.5	± 2.61
0.12	36.4	38.9	40.2	± 1.93
0.2	35.5	32.1	33.5	± 1.71
0.3	32.7	31.9	31.9	± 0.46
0.4	29.6	30.3	30.5	± 0.47
0.5	30.8	31.0	30.5	± 0.25
1.0	31.1	31.2	31.0	± 0.15
2.0	30.4	31.2	31.4	± 0.53
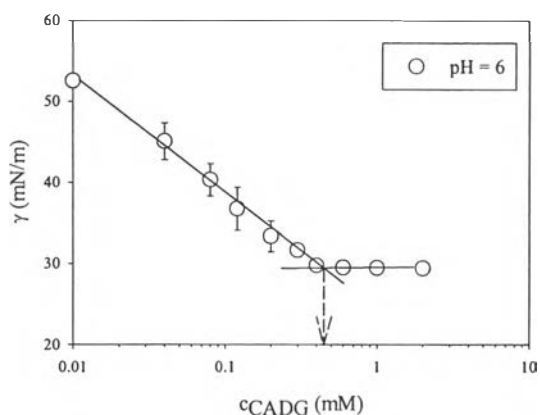
Figure 7.1 Surface tension vs. CADG concentration at pH = 6.
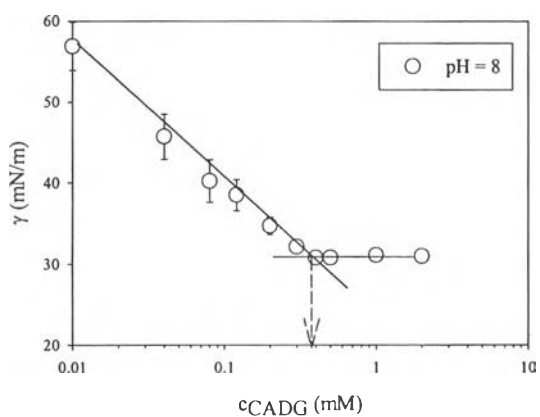
Figure 7.2 Surface tension vs. CADG concentration at pH = 8.

(iii) CADG solution at pH = 11

c_{CADG} (mM)	γ (mN/m)	γ (mN/m)	γ (mN/m)	Std. deviation
0.01	44.2	44.3	44.0	± 0.15
0.04	39.6	42.9	42.7	± 1.85
0.08	38.0	35.8	37.2	± 1.11
0.12	35.8	35.8	33.2	± 1.50
0.2	33.0	35.3	34.1	± 1.15
0.3	31.3	33.3	32.0	± 1.01
0.4	32.6	32.5	32.2	± 0.21
0.6	31.3	32.3	31.9	± 0.50
1.0	31.7	31.9	31.6	± 0.15
2.0	31.4	31.9	31.7	± 0.25

(iv) CADG solution at pH = 11

c_{CADG} (mM)	γ (mN/m)	γ (mN/m)	γ (mN/m)	Std. deviation
0.01	44.4	44.1	44.2	± 0.15
0.04	39.8	43.1	42.7	± 1.80
0.08	38.2	35.7	37.1	± 1.25
0.12	35.7	33.4	35.6	± 1.30
0.2	34.0	35.4	33.1	± 1.16
0.3	33.7	31.3	31.7	± 1.29
0.4	32.8	32.3	32.4	± 0.26
0.5	31.4	31.9	32.1	± 0.36
1.0	31.8	31.6	31.8	± 0.12
2.0	31.6	31.7	31.7	± 0.06
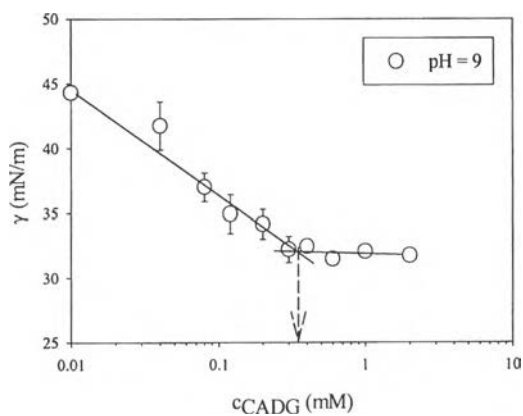
Figure 7.3 Surface tension vs. CADG concentration at pH = 9.
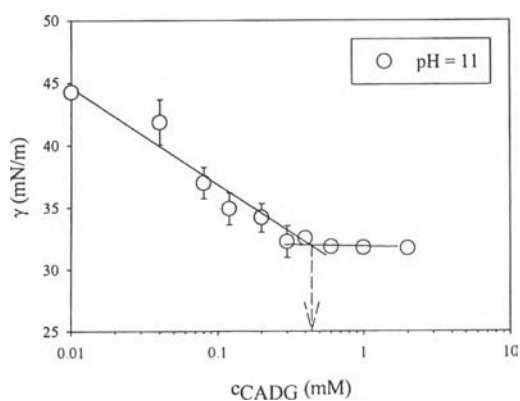
Figure 7.4 Surface tension vs. CADG concentration at pH = 11.

(v) Effect of pH on cmc value

pH	cmc (mM)
2	1.0
3	0.6
5	0.5
6	0.45
7	0.40
8	0.39
9	0.36
10	0.42
11	0.44
12	0.45

Figure is shown in section 4.7.1.

7.2 Data from conductivity measurement

7.1.1 Determination of cac for HPC-CADG system

c_{CADG} (mM)	Conductance (mS/cm)	Conductance (mS/cm)
0.001	35.5	35.6
0.01	38.0	38.3
0.1	43.7	44.3
0.2	48.3	56.2
0.25	50.0	50.5
0.3	56.2	56.5
0.4	65.5	65.8
0.6	79.9	80.2
1	110.3	110.7
1.5	146	146.5
2	183	184.0

Figure is shown in section 4.7.1.

7.3 Data from viscosity measurement

7.3.1 HPC (0.4 g/dL)-CADG at isoelectric point

c_{CADG} (mM)	η_{sp}	η_{sp}	Std. deviation
0.001	0.5444	0.5500	± 0.004
0.005	0.5392	0.5464	± 0.005
0.01	0.5463	0.5519	± 0.004
0.1	0.5588	0.5588	± 0.000
0.2	0.5566	0.5566	± 0.000
0.3	0.5632	0.5687	± 0.004
0.4	0.5596	0.5652	± 0.004
0.6	0.5556	0.5582	± 0.002
1	0.5418	0.5457	± 0.003
2	0.5384	0.5442	± 0.004
3	0.5405	0.5497	± 0.007
4	0.5372	0.5386	± 0.001
5	0.5310	0.5340	± 0.002
6	0.5499	0.5526	± 0.002
7	0.5504	0.5608	± 0.007
8	0.5509	0.5636	± 0.009
9	0.5512	0.5626	± 0.008

Figure is shown in section 4.7.2.

7.4 Data from dynamic light scattering measurement

(i) HPC (M_w = 1x10^5 g/mol) 0.4 g/dL – CADG at pH = 9

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0	70	18.64	347.45	21.3	21.5
	90	22.98	528.08	21.5	21.8
	110	26.61	708.09	21.8	22.1
	130	29.44	866.71	21.8	22.4
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.01	70	18.64	347.45	20.8	20.9
	90	22.98	528.08	21.1	21.4
	110	26.61	708.09	21.0	21.7
	130	29.44	866.71	21.9	22.2

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.1	70	18.64	347.45	17.8	18.3
	90	22.98	528.08	18.3	18.9
	110	26.61	708.09	19.1	19.5
	130	29.44	866.71	18.9	19.4

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.3	70	18.64	347.45	16.5	17.5
	90	22.98	528.08	18.0	18.1
	110	26.61	708.09	19.0	19.2
	130	29.44	866.71	20.2	19.9

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
0.6	70	18.64	347.45	17.3	18.0
	90	22.98	528.08	18.2	18.5
	110	26.61	708.09	19.0	19.8
	130	29.44	866.71	20.3	20.0

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
1.0	70	18.64	347.45	17.8	18.3
	90	22.98	528.08	18.4	19.2
	110	26.61	708.09	20.2	19.2
	130	29.44	866.71	20.1	20.8

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
3.0	70	18.64	347.45	17.2	18.0
	90	22.98	528.08	17.2	19.0
	110	26.61	708.09	17.5	19.7
	130	29.44	866.71	18.2	19.5

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
4.0	70	18.64	347.45	17.7	18.8
	90	22.98	528.08	19.2	20.2
	110	26.61	708.09	18.8	20.3
	130	29.44	866.71	19.7	20.8

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
5.0	70	18.64	347.45	18.2	19.2
	90	22.98	528.08	19.2	20.0
	110	26.61	708.09	19.8	20.8
	130	29.44	866.71	20.2	21.1

c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
6.0	70	18.64	347.45	17.3	18.2
	90	22.98	528.08	17.9	18.5
	110	26.61	708.09	18.6	20.6
	130	29.44	866.71	19.7	19.8
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
7.0	70	18.64	347.45	16.7	18.8
	90	22.98	528.08	19.4	20.3
	110	26.61	708.09	20.2	21.2
	130	29.44	866.71	20.6	21.8
c_s (mM)	θ (angle)	$q \times 10^3$ (m^{-1})	$q^2 \times 10^6$ (m^{-2})	$D_{app} \times 10^{12}$ (m^2/s)	
9.0	70	18.64	347.45	17.1	19.2
	90	22.98	528.08	19.5	21.5
	110	26.61	708.09	20.6	22.1
	130	29.44	866.71	22.2	23.4
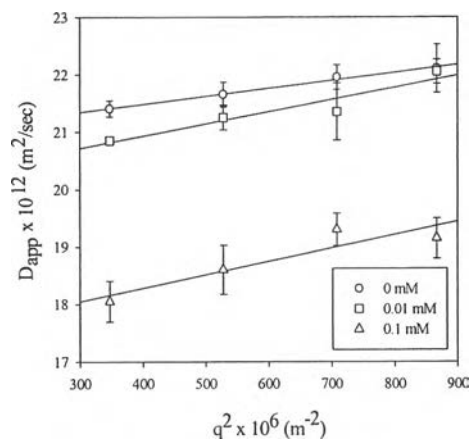
Figure 7.5 (A) D_{app} as a function of q^2 at different CADG concentrations. HPC M_w = 1 x 10^5 g/mol, HPC concentration = 0.4 g/dL; CADG concentrations: (O) 0 mM; (□) 0.01 mM; and (Δ) 0.1 mM.
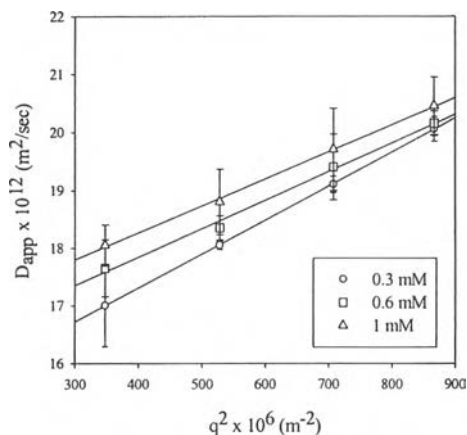
Figure 7.5 (B) D_{app} as a function of q^2 at different CADG concentrations. HPC M_w = 1 x 10^5 g/mol, HPC concentration = 0.4 g/dL; CADG concentrations: (O) 0.3 mM; (□) 0.6 mM; and (Δ) 1 mM.
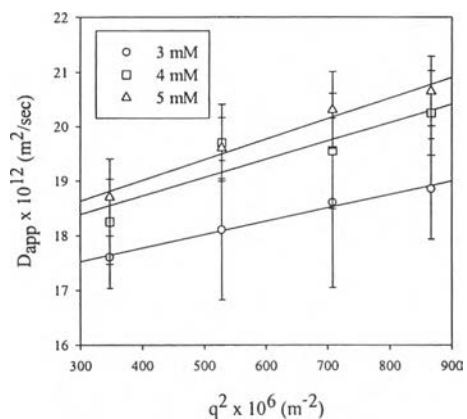
Figure 7.5 (C) D_{app} as a function of q^2 at different CADG concentrations. HPC M_w = 1 x 10^5 g/mol, HPC concentration = 0.4 g/dL; CADG concentrations: (O) 3 mM; (□) 4 mM; and (Δ) 5 mM.
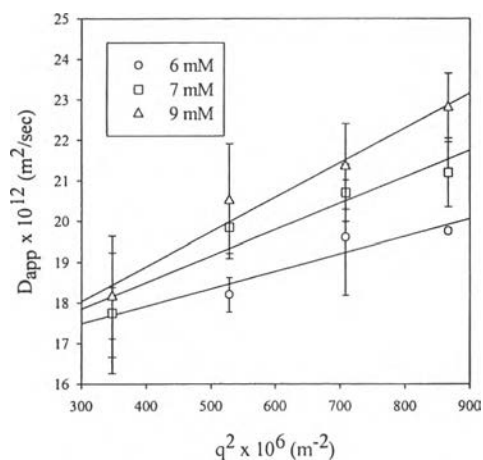
Figure 7.5 (D) D_{app} as a function of q^2 at different CADG concentrations. HPC M_w = 1 x 10^5 g/mol, HPC concentration = 0.4 g/dL; CADG concentrations: (O) 6 mM; ($\square$) 7 mM; and (Δ) 9 mM.

7.4 Data from refractive index increment measurement

(i) HPC (M_w = 1x10^5 g/mol) in water

c_p (g/100 mL)	Δn	Δn	dn/dc_p (mL/g)
0.02	18	28	
0.04	46	55	
0.06	72	85	0.1316 ± 0.001
0.08	103	115	
0.10	125	136	
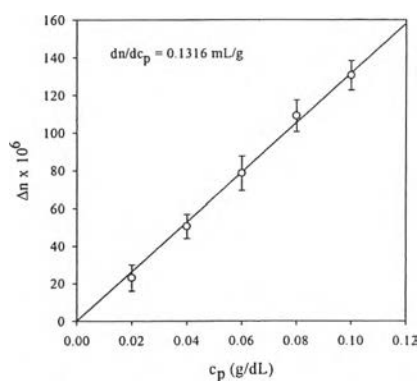
Figure 7.6 Refractive index of HPC as a function of HPC concentration. The slope of the straight line gives the refractive index increment (dn/dc) of the polymer solution.

(ii) HPC ($M_w = 1 \times 10^5$ g/mol) + CADG at $c_s/c_p = 0.026$ in water

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{\mu s}$ (mL/g)
0.026	0.20	239	253	0.1212 ± 0.002
	0.25	301	305	
	0.30	341	358	
	0.35	405	418	
	0.40	501	510	

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{cs}$ (mL/g)
0.026	0.38	458	460	0.1205 ± 0.001
	0.39	470	475	
	0.40	476	480	
	0.41	493	495	
	0.42	505	508	

| c_s/c_p	c_s (g/100 mL)	Δn	Δn	$(dn/dc_s)_{cp}$ (mL/g)
0.026	0.0040	3.5	5.0	0.1240 ± 0.003
	0.0045	4.2	5.8	
	0.0050	5.0	6.5	
	0.0055	7.0	8.2	
	0.0060	7.4	8.6	
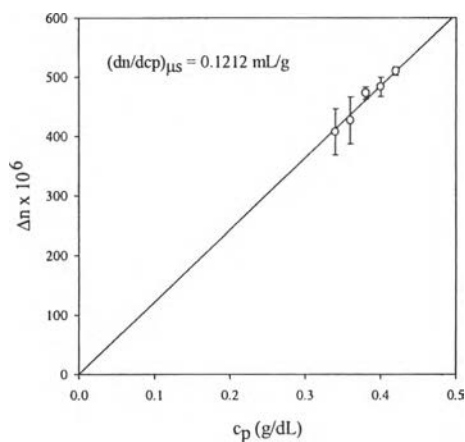
Figure 7.7 (A) dn/dc value for HPC + CADG at c_s/c_p = 0.026 (fixed CADG concentration and varied HPC concentration after dialysis).
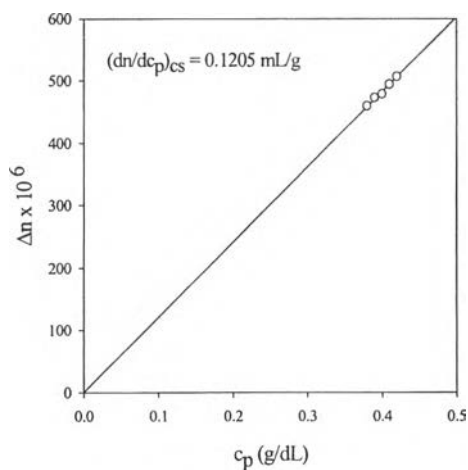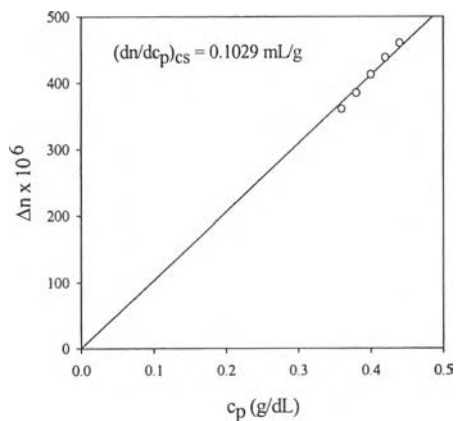

Figure 7.7 (B) dn/dc value for HPC + CADG at c_s/c_p = 0.026 (fixed CADG concentration and varied HPC concentration without dialysis).
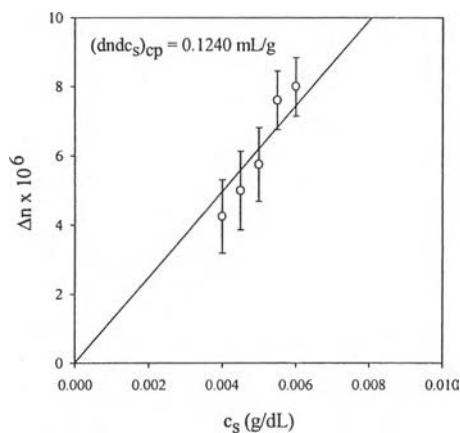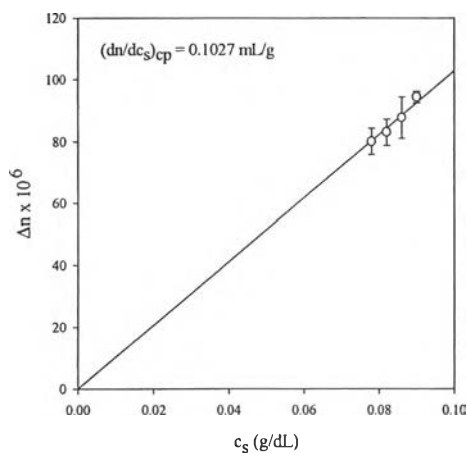
Figure 7.7 (C) dn/dc value for HPC + CADG at $c_s/c_p = 0.026$ (fixed HPC concentration and varied CADG concentration without dialysis).

(iii) HPC ($M_w = 1 \times 10^5$ g/mol) + CADG at $c_s/c_p = 0.43$ in water

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{\mu s}$ (mL/g)
0.43	0.30	425	445	0.1394 ± 0.002
	0.35	467	507	
	0.40	538	558	
	0.45	605	645	

c_s/c_p	c_p (g/100 mL)	Δn	Δn	$(dn/dc_p)_{cs}$ (mL/g)
0.43	0.36	346	376	0.1029 ± 0.003
	0.38	394	375	
	0.40	400	425	
	0.42	448	428	
	0.44	465	455	

c_s/c_p	c_s (g/100 mL)	Δn	Δn	$(dn/dc_s)_{cp}$ (mL/g)
0.43	0.078	77	83.0	0.1027 ± 0.003
	0.082	80	86.0	
	0.086	83	92.4	
	0.900	93	95.6	
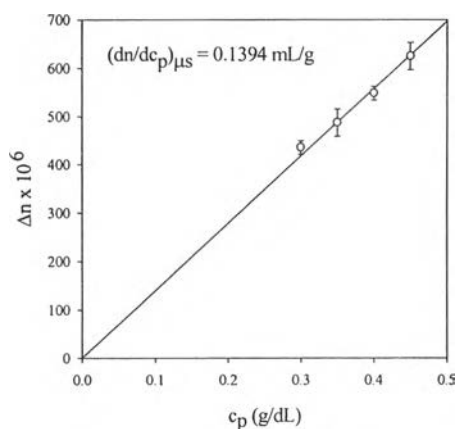
Figure 7.8 (A) dn/dc value for HPC + CADG at $c_s/c_p = 0.43$ (fixed CADG concentration and varied HPC concentration after dialysis).

Figure 7.7 (B) dn/dc value for HPC + CADG at $c_s/c_p = 0.43$ (fixed CADG concentration and varied HPC concentration without dialysis).

Figure 7.7 (C) dn/dc value for HPC + CADG at $c_s/c_p = 0.43$ (fixed HPC concentration and varied CADG concentration without dialysis).

7.5 Data from static light scattering measurement

7.5.1 HPC ($M_w = 1x10^5$ g/mol) – CADG at $c_s/c_p = 0.026$ at pH = 9
(0.2 g/dL HPC + 0.0052 g/dL CADG)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
40	0.6981	0.1170	5.150
50	0.8727	0.1786	5.360
60	1.0472	0.2500	5.603
70	1.2217	0.3290	5.872
80	1.3963	0.4132	6.159
90	1.5708	0.5000	6.454
100	1.7453	0.5868	6.750
110	1.9199	0.6710	7.037
120	2.0944	0.7500	7.306

Figure is shown in Section 4.7.4.

(0.25 g/dL PEO + 0.0065 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
40	0.6981	0.1170	5.974
50	0.8727	0.1786	6.226
60	1.0472	0.2500	6.518
70	1.2217	0.3290	6.842
80	1.3963	0.4132	7.186
90	1.5708	0.5000	7.542
100	1.7453	0.5868	7.897
110	1.9199	0.6710	8.242
120	2.0944	0.7500	8.565

(0.3 g/dL PEO + 0.0078 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
40	0.6981	0.1170	6.843
50	0.8727	0.1786	7.100
60	1.0472	0.2500	7.398
70	1.2217	0.3290	7.727
80	1.3963	0.4132	8.078
90	1.5708	0.5000	8.440
100	1.7453	0.5868	8.802
110	1.9199	0.6710	9.152
120	2.0944	0.7500	9.482

(0.35 g/dL PEO + 0.0091 g/dL HTAC)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	$Kc/R_\theta \times 10^6$
40	0.6981	0.1170	7.977
50	0.8727	0.1786	8.215
60	1.0472	0.2500	8.491
70	1.2217	0.3290	8.797
80	1.3963	0.4132	9.123
90	1.5708	0.5000	9.458
100	1.7453	0.5868	9.794
110	1.9199	0.6710	10.120
120	2.0944	0.7500	10.425

7.5.2 HPC ($M_w = 1x10^5$ g/mol) – CADG at $c_s/c_p = 0.43$ at pH = 9

(0.2 g/dL HPC + 0.086 g/dL CADG)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	Kc/R_θ x 10^5
60.0	1.0472	0.2500	1.55
68.8	1.2008	0.3192	1.63
77.5	1.3526	0.3918	1.67
86.3	1.5062	0.4677	1.75
95.0	1.6581	0.5436	1.83
103.8	1.8117	0.6193	1.80
112.5	1.9635	0.6913	1.89
121.3	2.1171	0.7598	1.99
130.0	2.2689	0.8214	2.02

Figure is shown in Section 4.7.4.

(0.3 g/dL HPC + 0.129 g/dL CADG)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	Kc/R_θ x 10^6
60.0	1.0472	0.2500	1.66
68.8	1.2008	0.3192	1.81
77.5	1.3526	0.3918	1.88
86.3	1.5062	0.4677	1.99
95.0	1.6581	0.5436	1.89
103.8	1.8117	0.6193	2.05
112.5	1.9635	0.6913	2.19
121.3	2.1171	0.7598	2.16
130.0	2.2689	0.8214	2.19

(0.4 g/dL HPC + 0.172 g/dL CADG)

Angle (degree)	Angle (radian)	$Sin^2(\theta/2)$	Kc/R_θ x 10^6
60.0	1.0472	0.2500	2.02
68.8	1.2008	0.3192	2.12
77.5	1.3526	0.3918	2.16
86.3	1.5062	0.4677	2.11
95.0	1.6581	0.5436	2.17
103.8	1.8117	0.6193	2.25
112.5	1.9635	0.6913	2.34
121.3	2.1171	0.7598	2.45
130.0	2.2689	0.8214	2.46

CURRICULUM VITAE

Name:	Khine Yi Mya
Date of Birth:	August 12, 1963
Nationality:	Myanmar

University education:

1980 – 1984	Bachelor Degree of Science in Chemistry (Hons.), Department of Chemistry, Mandalay University, Mandalay, Myanmar
1985 – 1989	Master Degree of Science in Chemistry, Department of Chemistry, Yangon University, Yangon, Myanmar
1995 – 1997	Master Degree of Science in Polymer Science, The Petroleum and Petrochemical College, Chulalongkorn University, Bangkok, Thailand

Work experience:

1986 – 1994	Position:	Demonstrator,
	Department:	Department of Chemistry, Yangon University, Yangon, Myanmar

Publications:

1. Interactions between the nonionic surfactant and polyacrylamide studied by light scattering and viscometry.
   K. Yi Mya, A. M. Jamieson, and A. Sirivat. Polymer, 1999, 40, 5741.

2. Effect of temperature and molecular weight on binding between poly (ethylene oxide) and a cationic surfactant in aqueous solutions.
   K. Yi Mya, A. M. Jamieson, and A. Sirivat. Langmuir, 2000, 16, 6131.

3. Structures of polymer-surfactant complex by static light scattering.
   K. Yi Mya, A. Sirivat, and A. M. Jamieson. Macromolecules, 2001, 34, 5260.

4. Effect of ionic strength on the structure of polymer-surfactant complexes.
   K. Yi Mya, A. Sirivat, A. M. Jamieson. Submitted to J. Phys. Chem.

5. Effect of temperature on isotropic phase of worm-like micelles.

Khine Yi Mya, Anuvat Sirivat, Alexander M. Jamieson. In preparation.

Proceedings:

1. Mya, K. Y.; Jamieson, A. M.; and Sirivat, A. "Effect of Temperature and Molecular Weight on Binding between Poly(ethylene oxide) and A Cationic Surfactant", The Polymer Processing Society (PPS) Asia/Australia Regional Meeting 1999, Bangkok, Thailand.

2. Mya, K. Y.; Jamieson, A. M.; and Sirivat, A. "A Study of Complex Formation between Poly(ethylene oxide) and A Cationic Surfactant", The First Thailand Materials Science and Technology 2000, Bangkok, Thailand.

3. Mya, K. Y.; Jamieson, A. M.; and Sirivat, A. "Interactions between the Cationic Surfactant and Polyethylene Oxide: Light Scattering, Conductivity, and Viscometric Studies", The Challenge 2000, Bangkok, Thailand.

4. Mya, K. Y.; Jamieson, A. M.; and Sirivat, A. " Temperature and Molecular Weight Dependence of Nonionic Polymer and A Cationic Surfactant", Poly Millennial 2000, Hawaii, USA.

5. Mya, K. Y.; Sirivat, A.; and Jamieson, A. M. " Effect of Ionic Strength on the Structure of Polymer-Surfactant Complexes", 27th Congress on Science and Technology 2001, Bangkok, Thailand.

Presentations:

1. Mya, K. Y., Jamieson A. M., and Sirivat, A. "Studies on complex formation between polyacrylamide and triton X-100". American Physical Society (APS) Meeting, 1997, Missouri, USA.

2. Mya, K. Y., Jamieson A. M., and Sirivat, A. "Effect of temperature and molecular weight on binding between poly(ethylene oxide) and cationic surfactant". The Polymer Processing Society (PPS), Asia/Australia Regional Meeting, 1999, Bangkok, Thailand.

3. Mya, K. Y., Jamieson A. M., and Sirivat, A. "A study of complex between poly(ethylene oxide) and a cationic surfactant". The First Thailand Materials Science and Technology Conference, 2000, Bangkok, Thailand.

4. Mya, K. Y., Jamieson A. M., and Sirivat, A. "Interactions between the cationic surfactant and polyethylene oxide: light scattering, conductivity,

and viscometric studies". The Challenge, 2000, Bangkok, Thailand.

5. Mya, K. Y., Jamieson A. M., and Sirivat, A. "Temperature and molecular weight dependence of nonionic polymer and a cationic surfactant". Poly Millenium 2000, Hawaii, USA.

6. Mya, K. Y., Sirivat, A., and Jamieson A. M. "A study of complex formation between poly (ethylene oxide) and a cationic surfactant". American Chemical Society (ACS) Society (ACS) Meeting, 2001, San Digeo, USA.

7. Mya, K. Y., Sirivat, A., and Jamieson A. M. "Effect of ionic strength on the structure of polymer-surfactant complexes". 27th Congress on Science and Technology of Thailand, 2001, Hat Yai, Thailand.