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## APPENDICES

### Appendix A

#### Data from refractive index measurement

A-1)  $\Delta n$  of HPC in aqueous solution at 30°C (Figure 2.3)

$C_{\text{HPC}}$ (%wt)	Measurement 1				Measurement 2			
	$\Delta n \times 10^6$		Mean	S.D.	$\Delta n \times 10^6$		Mean	S.D.
	No.1	No.2			No.1	No.2		
0.02	21.2	22.3	21.75	0.7778	19.7	20.4	20.05	0.4950
0.04	54.9	56.0	55.45	0.7778	53.5	54.2	53.85	0.4950
0.06	82.6	83.3	82.95	0.4950	80.6	81.3	80.95	0.4950
0.08	108	110	109.0	1.4142	108	108	108.0	0.0000
0.10	131	132	131.5	0.7071	129	130	129.5	0.7071

### Appendix B

#### Data from conductivity measurement

B-1) Conductance of HTAB in aqueous solution at 28±1°C (Figure 3.8)

$C_{\text{HTAB}}$ (%wt)	Conductance ( $\mu\text{S}$ )	$C_{\text{HTAB}}$ (%wt)	Conductance ( $\mu\text{S}$ )
0.005	15.9	0.060	109.3
0.010	29.2	0.080	121.2
0.015	41.2	0.100	135.5
0.020	54.3	0.120	147.3
0.025	66.0	0.140	162.2
0.030	78.8	0.160	173.5
0.040	94.3	0.180	187.0

## Appendix C

### Data from surface tension measurements

#### C-1) Surface tension of HTAB solutions at $28\pm 1^\circ\text{C}$ (Figure 3.7)

$C_{\text{HTAB}}$ (%wt)	Surface tension (mN/m)		Mean	S.D.
	No.1	No.2		
0.010	53.9	54.0	53.95	0.0707
0.015	51.6	51.6	51.60	0.0000
0.020	46.9	46.9	46.90	0.0000
0.025	43.5	43.6	43.55	0.0707
0.030	40.5	40.6	40.55	0.0707
0.040	39.2	39.3	39.25	0.0707
0.050	39.3	39.4	39.35	0.0707
0.060	39.0	39.1	39.05	0.0707
0.070	39.0	39.1	39.05	0.0707
0.080	39.0	39.0	39.00	0.0000
0.090	38.7	38.8	38.75	0.0707
0.100	38.7	38.8	38.75	0.0707

#### C-2) Surface tension of 0.02%wt HPC/ HTAB aqueous solutions at $28\pm 1^\circ\text{C}$

$C_{\text{HTAB}}$ (%wt)	Surface tension (mN/m)		Mean	S.D.
	No.1	No.2		
0.0007	42.7	42.4	42.55	0.2121
0.0031	42.4	42.4	42.40	0.0000
0.0070	41.8	41.9	49.85	0.0707
0.0109	41.7	-	41.70	-
0.0182	40.7	41.0	40.85	0.2121
0.0254	40.5	40.8	40.65	0.2121
0.0328	40.0	40.6	40.30	0.4243
0.0400	40.1	40.4	40.25	0.2121
0.0472	40.0	40.3	40.15	0.2121

C-3) Surface tension of 0.04%wt HPC/ HTAB aqueous solutions at  $28\pm 1^\circ\text{C}$ 

(Figure 3.9)

$C_{\text{HTAB}}$ (%wt)	Surface tension (mN/m)		Mean	S.D.
	No.1	No.2		
0.0018	43.2	42.4	42.80	0.5657
0.0036	43.0	42.5	42.75	0.3536
0.0055	42.4	41.8	42.10	0.4243
0.0073	42.5	42.2	42.35	0.2121
0.0091	42.0	41.8	41.90	0.1414
0.0109	41.8	41.8	41.80	0.0000
0.0146	41.3	41.3	41.30	0.0000
0.0182	40.8	40.9	41.30	0.0707
0.0219	40.8	40.5	40.85	0.2121
0.0365	40.4	40.5	40.65	0.0707
0.0437	40.2	40.5	40.45	0.2121
0.0510	39.4	39.8	40.35	0.2828
0.0593	39.2	39.2	39.60	0.0000

**Appendix D****Data from viscosity measurements**D-1) Reduced viscosity of HPC in water at  $30^\circ\text{C}$  (Figure 3.1)

$C_{\text{HPC}}$ (%wt)	$\eta$ (cP)		$\eta_{\text{sp}}/C_{\text{HPC}}$		Mean	S.D.
	No.1	No.2	No.1	No.2		
0.5	0.9678	0.9660	3.6120	3.5700	3.5910	0.0297
1.0	1.1589	1.1535	4.1380	4.0710	4.1045	0.0474
1.5	1.3816	1.3735	4.5693	4.5033	4.5363	0.0467
2.0	1.6321	1.6176	4.9555	4.8665	4.9110	0.0629
2.5	1.9291	1.9094	5.4132	5.3172	5.3652	0.0679



D-2) Inherent viscosity of HPC in water at 30°C (Figure 3.1)

$C_{HPC}$ (%wt)	$\eta$ (cP)		$\ln \eta_i$		Mean	S.D.
	No.1	No.2	No.1	No.2		
0.05	0.9678	0.9660	3.3205	3.2848	3.3027	0.0252
0.10	1.1589	1.1535	3.4628	3.4153	3.4391	0.0336
0.15	1.3816	1.3735	3.4800	3.4407	3.4604	0.0278
0.20	1.6321	1.6176	3.4434	3.3985	3.4210	0.0317
0.25	1.9291	1.9094	3.4233	3.3823	3.4028	0.0290

D-3) Dynamic viscosity of HPC in water extending to semidilute region at 30°C (Figure 3.2)

$C_{HPC}$ (%wt)	$\eta$ (cP)	$C_{HPC}$ (%wt)	$\eta$ (cP)
0.00	0.8197	0.25	1.9291
0.05	0.9678	0.30	2.2873
0.10	1.1589	0.40	3.1043
0.15	1.3816	0.50	4.2731
0.20	1.6321	0.60	6.3770
		0.80	11.9869

D-4) Specific viscosity of 0.02%wt HPC/ HTAB in water at 30°C (Figure 3.12 and Figure 3.13)

$C_{HTAB}$ (%wt)	$\eta$ (cP)		$\eta_{sp}$		Mean	S.D.	$C_{HTAB}/C_{HPC}$
	No.1	No.2	No.1	No.2			
0.010	0.8735	0.8711	0.0819	0.0780	0.0800	0.0028	0.50
0.015	0.8658	-	0.0723	-	0.0723	-	0.75
0.020	0.8544	0.8549	0.0582	0.0579	0.0581	0.0002	1.00
0.025	0.8614	-	0.0668	-	0.0668	-	1.25
0.030	0.8913	0.8976	0.1020	0.1108	0.1064	0.0002	1.50
0.040	0.8962	-	0.1100	-	0.1100	-	2.00
0.060	0.8970	-	0.1110	0.1009	0.1060	0.0071	3.00
0.080	0.8875	0.8970	0.0992	-	0.0992	-	4.00
0.100	0.8952	0.8959	0.1087	0.1036	0.1062	0.0036	5.00
0.120	-	0.8964	-	0.1093	0.1093	-	6.00
0.140	-	0.8968	-	0.1099	0.1099	-	7.00
0.160	-	0.8985	-	0.1119	0.1119	-	8.00
0.180	-	0.8994	-	0.1130	0.1130	-	9.00
0.200	-	0.9006	-	0.1145	0.1145	-	10.00

D-5) Specific viscosity of 0.04%wt HPC/ HTAB in water at 30°C (Figure 3.12 and Figure 3.13)

$C_{HTAB}$ (%wt)	$\eta$ (cP)		$\eta_{sp}$		Mean	S.D.	$C_{HTAB}/C_{HPC}$
	No.1	No.2	No.1	No.2			
0.0022	0.9516	0.9524	0.1806	0.1834	0.1820	0.0020	0.0550
0.0066	0.9498	0.9515	0.1784	0.1822	0.1803	0.0027	0.1650
0.0110	0.9508	0.9528	0.1796	0.1839	0.1818	0.0030	0.2750
0.0175	0.9422	0.9444	0.1690	0.1734	0.1712	0.0031	0.4375
0.0241	0.9261	0.9269	0.1489	0.1517	0.1503	0.0020	0.6025
0.0329	0.9291	0.9323	0.1527	0.1565	0.1546	0.0027	0.8225
0.0416	0.9690	-	0.2022	-	0.2022	-	1.0400
0.0614	1.0034	1.0012	0.2449	0.2440	0.2445	0.0006	1.5350
0.0811	1.0005	0.9976	0.2412	0.2395	0.2404	0.0012	2.0275
0.1008	0.9956	0.9928	0.2352	0.2335	0.2343	0.0012	2.5200
0.1205	0.9914	0.9898	0.2300	0.2298	0.2299	0.0001	3.0125
0.1403	-	0.9868	-	0.2261	0.2261	-	3.5075
0.1600	-	0.9839	-	0.2225	0.2225	-	4.0000

D-6) Specific viscosity of 0.06%wt HPC/ HTAB in water at 30°C (Figure 3.10, Figure 3.12 and Figure 3.13)

$C_{HTAB}$ (%wt)	$\eta$ (cP)		$\eta_{sp}$		Mean	S.D.	$C_{HTAB}/C_{HPC}$
	No.1	No.2	No.1	No.2			
0.005	1.0253	-	0.2639	-	0.2639	-	0.083
0.010	1.0241	1.0206	0.2625	0.2630	0.2628	0.0004	0.167
0.015	1.0179	-	0.2549	-	0.2549	-	0.250
0.020	1.0112	1.0132	0.2466	0.2538	0.2502	0.0051	0.333
0.030	0.9981	0.9998	0.2305	0.2373	0.2339	0.0048	0.500
0.040	1.0238	-	0.2622	-	0.2622	-	0.667
0.060	1.0854	1.0852	0.3381	0.3430	0.3406	0.0035	1.000
0.080	1.1080	1.1082	0.3658	0.3715	0.3687	0.0040	1.333
0.100	1.1020	-	0.3586	-	0.3586	-	1.667
0.120	1.0911	1.0922	0.3451	0.3516	0.3483	0.0046	2.000
0.140	1.0840	-	0.3363	-	0.3363	-	2.333
0.160	1.0777	1.0769	0.3286	0.3328	0.3307	0.3307	2.667
0.180	1.0708	-	0.3200	-	0.3200	-	3.000

D-7) Specific viscosity of 0.08%wt HPC/ HTAB in water at 30°C (Figure 3.12 and Figure 3.13)

$C_{HTAB}$ (%wt)	$\eta$ (cP)		$\eta_{sp}$		Mean	S.D.	$C_{HTAB}/C_{HPC}$
	No.1	No.2	No.1	No.2			
0.010	1.1048	1.1064	0.3705	0.3709	0.3707	0.0003	0.125
0.020	1.0964	-	0.3601	-	0.3601	-	0.250
0.030	1.0936	1.0936	0.3566	0.3550	0.3558	0.0011	0.375
0.040	1.1039	-	0.3694	-	0.3694	-	0.500
0.060	1.1661	1.1562	0.4465	0.4326	0.4396	0.0098	0.750
0.080	1.1949	-	0.4822	-	0.4822	-	1.000
0.100	1.2137	1.2131	0.5056	0.5031	0.5044	0.0018	1.250
0.120	0.9981	-	0.4895	-	0.4895	-	1.500
0.140	1.1871	1.1852	0.4726	0.4685	0.4706	0.0029	1.750
0.160	1.1747	-	0.4572	-	0.4572	-	2.000
0.180	1.1660	1.1679	0.4465	0.4471	0.4468	0.0004	2.250

D-8) Specific viscosity of 0.10%wt HPC/ HTAB in water at 30°C (Figure 3.12 and Figure 3.13)

$C_{HTAB}$ (%wt)	$\eta$ (cP)		$\eta_{sp}$		Mean	S.D.	$C_{HTAB}/C_{HPC}$
	No.1	No.2	No.1	No.2			
0.010	1.1979	1.1941	0.4758	0.4778	0.4768	0.0014	0.100
0.020	1.2008	-	0.4869	-	0.4869	-	0.200
0.030	1.2141	-	0.5033	-	0.5033	-	0.300
0.040	1.2301	1.2296	0.5235	0.5218	0.5225	0.0010	0.400
0.060	1.2386	-	0.5337	-	0.5337	-	0.600
0.080	1.2802	1.2787	0.5852	0.5824	0.5838	0.0020	0.800
0.100	1.3081	1.3060	0.6198	0.6163	0.6181	0.0025	1.000
0.120	1.3255	-	0.6413	-	0.6413	-	1.200
0.140	1.3325	1.3233	0.6499	0.6377	0.6438	0.0086	1.400
0.160	1.2997	-	0.6093	-	0.6093	-	1.600
0.180	1.2911	-	0.5987	-	0.5987	-	1.800

## Appendix E

### Data from dynamic light scattering

E-1) Data of HPC solutions for different HPC concentrations at various angles.

**TableE-1.1 : 0.10%wt HPC**

Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	ZAve (nm)	Poly-dispersity	In Range	Merit	$D_{app} \times 10^{-8}$ (cm <sup>2</sup> /s)
75	3.50	61.0	89.4	48.1	0.493	98.6	50.0	9.1
	3.50	60.8	87.8	48.3	0.474	98.7	49.1	9.2
	3.50	61.0	88.3	48.4	0.477	97.2	49.0	9.1
	Average	3.50	60.9	88.5	48.3	0.481	98.2	49.4
S.D.	0.0000	0.1155	0.8185	0.1528	0.0102	0.8386	0.5508	0.0577
90	2.40	58.3	85.1	46.0	0.488	98.5	46.9	9.6
	2.40	58.2	85.3	45.9	0.492	98.1	46.9	9.6
	2.40	58.1	84.2	46.0	0.479	98.8	47.3	9.6
	Average	2.40	58.2	84.9	46.0	0.486	98.6	47.0
S.D.	0.0000	0.1000	0.5859	0.0577	0.0067	0.3512	0.2309	0.0000
105	1.80	54.5	78.8	43.3	0.475	97.9	47.0	10.2
	1.80	55.2	81.0	43.4	0.495	99.3	47.8	10.1
	1.80	54.6	79.7	43.1	0.488	98.4	47.4	10.2
	Average	1.80	54.8	79.8	43.3	0.486	98.5	47.4
S.D.	0.0000	0.3786	1.1060	0.1528	0.0101	0.7095	0.4000	0.0577
120	1.50	52.4	76.0	41.6	0.478	99.3	45.4	10.6
	1.50	52.4	75.5	41.7	0.471	98.2	46.3	10.6
	1.50	52.4	75.9	41.6	0.478	98.9	46.7	10.6
	Average	1.50	52.4	75.8	41.6	0.476	98.8	46.1
S.D.	0.0000	0.0000	0.2646	0.0577	0.0040	0.5568	0.6658	0.0000

**TableE-1.2 : 0.15%wt HPC**

Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	ZAve (nm)	Poly-dispersity	In Range	Merit	$D_{app} \times 10^{-8}$ (cm <sup>2</sup> /s)
75	3.80	65.2	98.3	50.4	0.532	98.0	53.7	8.5
	3.80	64.7	97.4	50.0	0.530	98.0	53.1	8.6
	3.80	64.8	97.7	50.0	0.533	98.1	53.5	8.6
	Average	3.80	64.9	97.8	50.1	0.532	98.0	53.4
S.D.	0.0000	0.2646	0.4583	0.2309	0.0015	0.0577	0.3055	0.0577
90	2.60	61.7	92.3	48.0	0.519	99.0	51.4	9.0
	2.60	61.8	91.8	48.3	0.510	98.1	51.4	9.0
	2.60	61.2	91.7	47.5	0.523	97.9	51.5	9.1
	Average	2.60	61.6	91.9	47.9	0.517	98.3	51.4
S.D.	0.0000	0.3215	0.3215	0.4041	0.0067	0.5859	0.0577	0.0577
105	1.90	59.2	89.7	45.6	0.539	97.2	50.9	9.4
	1.90	58.3	88.4	44.9	0.540	98.8	51.4	9.5
	1.90	58.4	88.4	45.0	0.538	98.4	51.3	9.5
	Average	1.90	58.6	88.8	45.2	0.539	98.1	51.2
S.D.	0.0000	0.7506	0.7506	0.3786	0.0010	0.8327	0.2646	0.0577
120	1.50	56.2	84.7	43.5	0.531	99.1	49.4	9.9
	1.50	56.2	84.6	43.5	0.530	97.5	50.1	9.9
	1.50	56.0	83.8	43.5	0.521	98.1	49.6	9.9
	Average	1.50	56.1	84.4	43.5	0.527	98.2	49.7
S.D.	0.0000	0.4933	0.4933	0.0000	0.0055	0.8083	0.3606	0.0000

**TableE-1.3: 0.20%wt HPC**

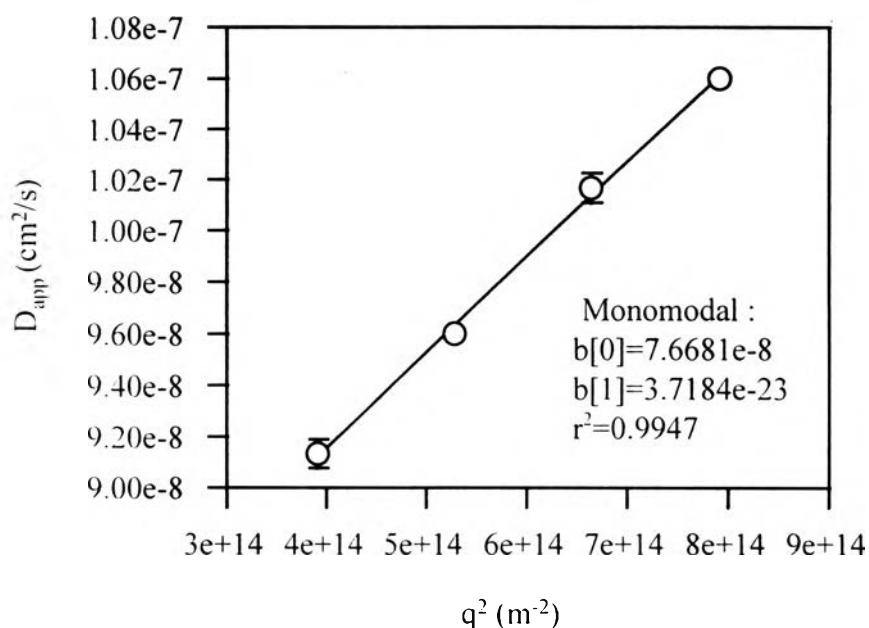
Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	Z <sub>Ave</sub> (nm)	Poly-dispersity	In Range	Merit	D <sub>app</sub> $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	3.40	61.1	91.9	47.2	0.530	98.5	53.7	9.1
	3.40	61.5	91.8	47.8	0.518	99.6	53.8	9.1
	3.40	62.3	94.6	48.0	0.541	99.0	53.5	8.9
	Average	3.40	61.6	92.8	47.7	0.530	99.0	53.7
S.D.	0.0000	0.6110	1.5885	0.4163	0.0115	0.5508	0.1528	0.1155
90	2.40	57.7	86.2	44.9	0.518	99.6	52.1	9.6
	2.40	57.7	86.3	44.8	0.520	98.4	52.1	9.6
	2.40	58.4	88.3	45.0	0.537	98.3	52.3	9.5
	Average	2.40	57.9	86.9	44.9	0.525	98.8	52.2
S.D.	0.0000	0.4041	1.1846	0.1000	0.0104	0.7324	0.0058	0.0577
105	1.90	55.5	83.7	42.9	0.539	98.9	51.5	10.0
	1.90	55.5	82.9	43.1	0.520	99.2	51.2	10.0
	1.90	55.9	84.3	43.2	0.532	98.2	51.5	10.0
	Average	1.90	55.6	83.6	43.1	0.530	98.8	51.4
S.D.	0.0000	0.2309	0.7024	0.1528	0.0096	0.5132	0.1732	0.0000
120	1.50	53.9	80.9	41.7	0.527	98.5	50.4	10.3
	1.50	53.3	79.7	41.4	0.521	100.0	50.0	10.5
	1.50	53.5	80.5	41.4	0.530	99.6	50.3	10.4
	Average	1.50	53.6	80.4	41.5	0.526	99.4	50.2
S.D.	0.0000	0.3055	0.6110	0.1732	0.0046	0.7767	0.2082	0.1000

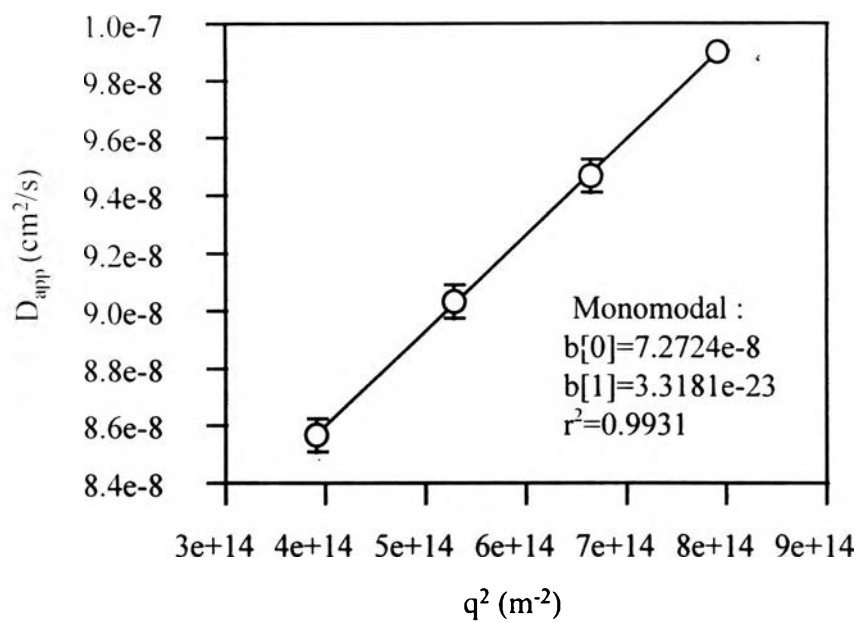
**TableE-1.4 : 0.25%wt HPC**

Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	Z <sub>Ave</sub> (nm)	Poly-dispersity	In Range	Merit	D <sub>app</sub> $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	3.60	63.5	97.6	48.4	0.561	98.6	54.3	8.8
	3.60	63.9	98.6	48.5	0.567	98.8	54.2	8.7
	3.60	63.6	97.5	48.5	0.557	97.8	53.7	8.8
	Average	3.60	63.7	97.9	48.5	0.562	98.4	54.1
S.D.	0.0000	0.2082	0.6083	0.0577	0.0050	0.5292	0.3215	0.577
90	2.50	59.3	90.2	45.5	0.546	98.2	52.2	9.4
	2.50	59.0	89.9	45.2	0.547	98.3	52.7	9.4
	2.50	60.0	91.5	46.0	0.548	99.6	52.4	9.3
	Average	2.50	59.4	90.5	45.6	0.547	98.7	52.4
S.D.	0.0000	0.5132	0.8505	0.4041	0.0010	0.7810	0.2517	0.0577
105	1.90	56.4	86.0	43.2	0.549	99.1	52.0	9.9
	1.90	56.0	85.4	43.0	0.548	98.2	52.0	9.9
	1.90	56.8	87.0	43.4	0.555	99.1	52.1	9.8
	Average	1.90	56.4	86.1	43.2	0.551	98.8	52.0
S.D.	0.0000	0.4000	0.8083	0.2000	0.0038	0.5196	0.0577	0.0577
120	1.50	54.8	83.7	42.0	0.550	51.2	98.4	10.2
	1.50	54.5	82.9	41.7	0.548	50.9	99.0	10.2
	1.50	54.6	83.5	41.8	0.552	50.9	99.4	10.2
	Average	1.50	54.6	83.4	41.8	0.550	51.0	98.9
S.D.	0.0000	0.1528	0.4163	0.1528	0.0020	0.1732	0.5033	0.0000

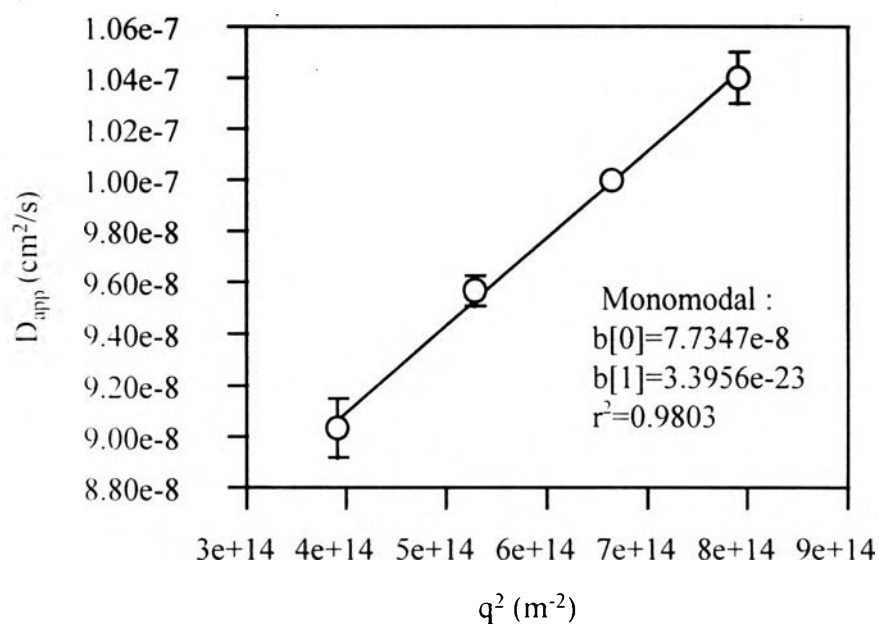
**TableE-1.5** : 0.30%wt HPC

Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	ZAve (nm)	Poly-dispersity	In Range	Merit	$D_{app} \times 10^{-8}$ ( $cm^2/s$ )
75	3.50	61.7	93.8	47.4	0.543	99.3	54.4	9.0
	3.50	62.7	95.3	48.1	0.545	97.0	54.5	8.9
	3.50	61.4	93.7	47.1	0.549	98.9	54.7	9.1
Average	3.50	61.9	94.3	47.5	0.546	98.4	54.5	9.0
S.D.	0.0000	0.6807	0.8963	0.5132	0.0031	1.2288	0.1528	0.1000
90	2.30	57.8	89.0	44.0	0.564	99.0	52.4	9.6
	2.30	58.6	90.0	44.6	0.560	99.6	52.7	9.5
	2.30	59.0	90.8	45.0	0.562	99.2	52.8	9.4
Average	2.30	58.5	89.9	44.5	0.562	99.3	52.6	9.5
S.D.	0.0000	0.6110	0.9018	0.5033	0.0020	0.3055	0.2082	0.1000
105	1.90	56.2	86.5	42.8	0.562	98.6	52.9	9.9
	1.90	55.2	84.5	42.2	0.554	98.4	53.0	10.1
	1.90	56.3	85.8	43.2	0.548	97.8	53.0	9.9
Average	1.90	55.9	85.6	42.7	0.555	98.3	53.0	10.0
S.D.	0.0000	0.6083	1.0149	0.5033	0.0070	0.4163	0.0577	0.1155
120	1.50	54.2	83.5	41.1	0.567	52.1	98.1	10.3
	1.50	54.0	83.1	41.0	0.564	51.8	99.5	10.3
	1.50	54.2	83.1	41.4	0.557	51.8	98.3	10.3
Average	1.50	54.1	83.2	41.2	0.563	51.9	98.6	10.3
S.D.	0.0000	0.1155	0.2309	0.2082	0.0051	0.1732	0.7572	0.0000

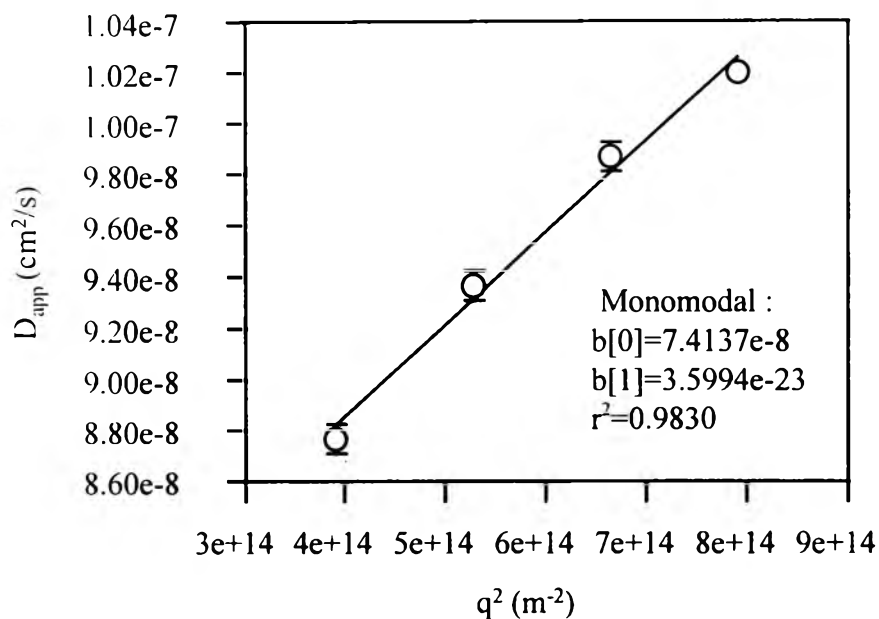
**FigureE-2.1**: Apparent diffusion coefficient for HPC solutions at fixing  $C_{HPC}$  of 0.10%wt as a function of wave vector square at 30°C.



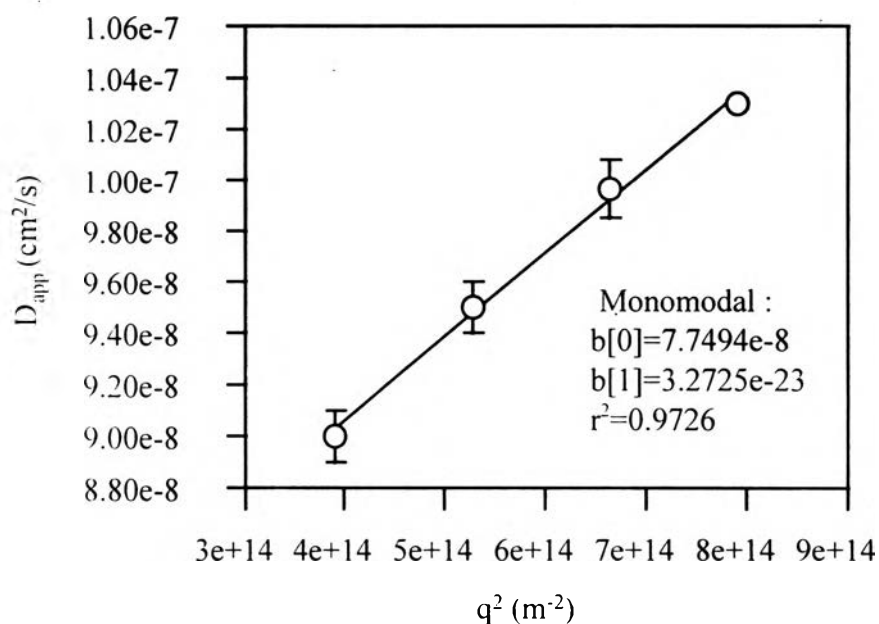
**FigureE-2.2:** Apparent diffusion coefficient for HPC solutions at fixing  $C_{HPC}$  of 0.15%wt as a function of wave vector square at 30°C.



**FigureE-2.3:** Apparent diffusion coefficient for HPC solutions at fixing  $C_{HPC}$  of 0.20%wt as a function of wave vector square at 30°C.



**FigureE-2.4:** Apparent diffusion coefficient for HPC solutions at fixing  $C_{HPC}$  of 0.25%wt as a function of wave vector square at 30°C.



**FigureE-2.5:** Apparent diffusion coefficient for HPC solutions at fixing  $C_{HPC}$  of 0.30%wt as a function of wave vector square at 30°C.



E-2) Center of mass diffusion coefficient for HPC solution at 30°C

(Figure 3.4)

$C_{\text{HPC}}$ (%wt)	$D_{\text{CM}}$ (cm <sup>2</sup> /s)
0.10	7.6681e-8
0.15	7.2724e-8
0.20	7.7347e-8
0.25	7.4137e-8
0.30	7.7494e-8

E-3) Polydispersity of relaxation time for HPC solutions at 90° (Figure 3.5)

$C_{\text{HPC}}$ (%wt)	Polydispersity			Average	S.D.
	No.1	No.2	No.3		
0.10	0.488	0.492	0.479	0.486	0.0067
0.15	0.519	0.510	0.523	0.517	0.0067
0.20	0.518	0.520	0.537	0.525	0.0104
0.25	0.546	0.547	0.548	0.547	0.0010
0.30	0.564	0.560	0.562	0.562	0.0020

E-4) Data of complex solutions at various angles.**TableE-4.1** : 0.06%wt HPC/ 0.01%wt HTAB

Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	Z <sub>Ave</sub> (nm)	Poly-dispersity	In Range	Merit	D <sub>app</sub> $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	4.00	66.6	96.9	52.7	0.483	98.4	40.6	8.3
	4.00	67.3	99.0	52.8	0.499	98.1	40.8	8.3
	4.00	68.0	100.6	53.2	0.506	99.0	41.0	8.2
Average	4.00	67.3	98.8	52.9	0.496	98.5	40.8	8.3
S.D.	0.0000	0.7	1.8556	0.2646	0.0118	0.4583	0.2000	0.0577
90	2.70	64.6	95.6	50.5	0.506	98.2	35.1	8.6
	2.70	64.6	95.8	50.5	0.508	99.6	35.5	8.6
	2.70	64.5	95.7	50.4	0.509	98.3	35.1	8.6
Average	2.70	64.6	95.7	50.5	0.508	98.7	35.2	8.6
S.D.	0.0000	0.0577	0.1000	0.0577	0.0015	0.7810	0.2309	0.0000
105	2.00	60.0	89.1	46.8	0.511	99.0	36.6	9.3
	2.00	61.3	90.8	47.9	0.507	98.6	38.2	9.1
	2.00	61.7	93.1	47.6	0.533	98.0	38.7	9.0
Average	2.00	61.0	91.0	47.4	0.517	98.5	37.8	9.1
S.D.	0.0000	0.8888	2.0075	0.5686	0.0140	0.5033	1.0970	0.1528
120	1.60	57.7	85.7	45.0	0.512	97.7	39.6	9.6
	1.60	56.9	84.4	44.5	0.507	98.3	38.3	9.7
	1.60	56.6	82.9	44.6	0.496	97.5	37.7	9.8
Average	1.60	57.1	84.3	44.7	0.505	97.8	38.5	9.7
S.D.	0.0000	0.5686	1.4012	0.2646	0.0082	0.4163	0.9713	0.1000

**TableE-4.2** : 0.06%wt HPC/ 0.02%wt HTAB

Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	Z <sub>Ave</sub> (nm)	Poly-dispersity	In Range	Merit	D <sub>app</sub> $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	4.30	78.6	115.8	61.7	0.499	98.1	47.8	7.1
	4.30	77.5	114.2	60.9	0.499	98.3	48.4	7.2
	4.30	77.4	113.3	61.0	0.491	97.2	48.7	7.2
Average	4.30	77.8	114.4	61.2	0.496	97.9	48.3	7.2
S.D.	0.0000	0.6658	1.2662	0.4359	0.0046	0.5859	0.4583	0.0577
90	3.20	76.9	115.3	59.6	0.524	97.7	45.1	7.2
	3.20	76.9	114.5	59.9	0.515	98.4	45.8	7.2
	3.20	77.1	116.5	59.4	0.536	97.9	45.7	7.2
Average	3.20	77.0	115.4	59.6	0.525	98.0	45.5	7.2
S.D.	0.0000	0.1155	1.0066	0.2517	0.0105	0.3606	0.3786	0.0000
105	2.30	69.3	103.3	53.9	0.516	98.6	39.8	8.0
	2.30	70.4	105.9	54.5	0.528	98.4	39.8	7.9
	2.30	70.4	105.9	54.5	0.527	97.7	40.5	7.9
Average	2.30	70.0	105.0	54.3	0.524	98.2	40.0	7.9
S.D.	0.0000	0.6351	1.5011	0.3464	0.0067	0.4726	0.4041	0.0577
120	1.90	68.5	103.4	54.5	0.538	97.8	42.1	8.1
	1.90	69.6	106.1	53.3	0.549	98.5	41.1	8.0
	1.90	69.7	105.0	53.9	0.531	98.9	40.6	8.0
Average	1.90	69.3	104.8	53.9	0.539	98.4	41.3	8.0
S.D.	0.0000	0.6658	1.3577	0.6000	0.0091	0.5568	0.7638	0.0577

**TableE-4.3 : 0.06%wt HPC/ 0.03%wt HTAB**

Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	Z <sub>Ave</sub> (nm)	Poly-dispersity	In Range	Merit	D <sub>app</sub> $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	3.90	69.2	110.1	51.2	0.620	95.7	49.2	8.0
	3.90	67.6	107.1	50.2	0.611	97.3	49.5	8.2
	3.90	68.3	108.6	50.6	0.618	93.7	48.9	8.1
	Average	3.90	68.4	108.6	50.7	0.616	95.6	49.2
S.D.	0.0000	0.8021	1.5000	0.5033	0.0047	1.8037	0.3000	0.1000
90	2.60	66.3	106.1	48.8	0.631	95.3	42.0	8.4
	2.60	65.7	105.5	48.3	0.635	97.1	41.9	8.4
	2.60	65.1	103.8	48.1	0.624	98.2	41.2	8.5
	Average	2.60	65.7	105.1	48.4	0.630	96.9	41.7
S.D.	0.0000	0.6000	1.1930	0.3606	0.0056	1.4640	0.4359	0.0577
105	1.80	58.3	91.5	43.1	0.595	98.2	44.4	9.5
	1.80	58.9	93.2	43.8	0.610	96.4	45.0	9.4
	1.80	58.9	93.5	43.8	0.614	99.0	46.5	9.4
	Average	1.80	58.7	92.7	43.6	0.606	97.9	45.3
S.D.	0.0000	0.3464	1.0780	0.4041	0.0100	1.3317	1.0817	0.0577
120	1.50	61.6	100.4	44.6	0.665	97.7	41.5	9.0
	1.50	59.1	95.5	43.1	0.650	97.5	39.1	9.4
	1.50	59.2	94.5	43.7	0.625	95.0	39.8	9.4
	Average	1.50	60.0	96.8	43.8	0.647	96.7	40.1
S.D.	0.0000	1.4154	3.1578	0.7550	0.0505	1.5044	1.2343	0.2309

**TableE-4.4 : 0.06%wt HPC/ 0.04%wt HTAB**

Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	Z <sub>Ave</sub> (nm)	Poly-dispersity	In Range	Merit	D <sub>app</sub> $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	2.60	41.7	69.4	29.6	0.709	93.1	30.6	13.3
	2.60	43.5	72.8	30.7	0.720	90.6	30.6	12.8
	2.60	40.4	66.8	28.9	0.694	91.2	27.3	13.7
	Average	2.60	41.9	69.7	29.7	0.708	91.6	29.5
S.D.	0.0000	1.5567	3.0089	0.9074	0.0131	1.3051	1.9053	0.4509
90	1.50	37.0	61.7	26.2	0.711	97.0	29.2	15.0
	1.50	37.0	61.6	26.2	0.712	92.6	28.2	15.0
	1.50	37.3	61.7	26.6	0.698	92.1	27.6	14.9
	Average	1.50	37.1	61.7	26.3	0.707	93.9	28.3
S.D.	0.0000	0.1732	0.0577	0.2309	0.0078	2.6963	0.8083	0.0577
105	1.20	33.3	54.4	24.1	0.671	95.5	34.2	16.7
	1.20	34.5	56.6	24.9	0.674	93.3	34.5	16.1
	1.20	33.8	55.1	24.5	0.663	98.1	35.0	16.4
	Average	1.20	33.9	55.4	24.5	0.669	95.6	34.6
S.D.	0.0000	0.6028	1.1240	0.4000	0.0057	2.4028	0.4041	0.3000
120	0.80	32.7	53.7	23.5	0.682	95.8	30.0	17.0
	0.80	32.9	54.4	23.5	0.694	95.9	28.6	16.9
	0.80	33.3	55.3	23.7	0.706	95.4	29.4	16.7
	Average	0.80	33.0	54.5	23.6	0.694	95.7	29.3
S.D.	0.0000	0.3055	0.8021	0.1155	0.0120	0.2646	0.7024	0.1528

**TableE-4.5 : 0.06%wt HPC/ 0.08%wt HTAB**

Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	Z <sub>Ave</sub> (nm)	Poly-dispersity	In Range	Merit	D <sub>app</sub> $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	2.50	37.3	64.4	25.4	0.796	91.3	30.1	14.9
	2.50	39.2	68.3	26.3	0.824	87.0	30.5	14.2
	2.50	39.2	68.1	26.4	0.817	89.8	29.4	14.2
Average	2.50	38.6	66.9	26.0	0.812	89.4	30.0	14.4
S.D.	0.0000	1.0970	2.1962	0.5508	0.0146	2.1825	0.5568	0.4041
90	1.20	29.1	50.7	19.5	0.829	92.4	26.9	19.1
	1.20	28.6	50.0	19.2	0.825	93.5	27.0	19.4
	1.20	28.7	49.9	19.3	0.822	94.0	26.3	19.4
Average	1.20	28.8	50.2	19.3	0.825	93.3	26.7	19.3
S.D.	0.0000	0.2646	0.4359	0.1528	0.0035	0.8185	0.3786	0.1732
105	1.00	25.6	43.5	17.8	0.752	94.7	27.2	21.6
	1.00	27.0	46.2	18.6	0.773	92.2	26.9	20.5
	1.00	27.4	47.0	18.8	0.780	89.2	27.6	20.3
Average	1.00	26.7	45.6	18.4	0.768	92.0	27.2	20.8
S.D.	0.0000	0.9452	1.8339	0.5292	0.0146	2.7538	0.3512	0.7000
120	0.70	22.9	38.6	16.1	0.734	97.3	26.1	24.2
	0.70	24.3	41.5	16.7	0.770	93.6	26.7	22.8
	0.70	23.7	40.3	16.4	0.757	93.3	26.5	23.4
Average	0.70	23.6	40.1	16.4	0.754	94.7	26.4	23.5
S.D.	0.0000	0.7024	1.4572	0.3000	0.0182	2.2279	0.3055	0.7024

**TableE-4.6 : 0.06%wt HPC/ 0.12%wt HTAB**

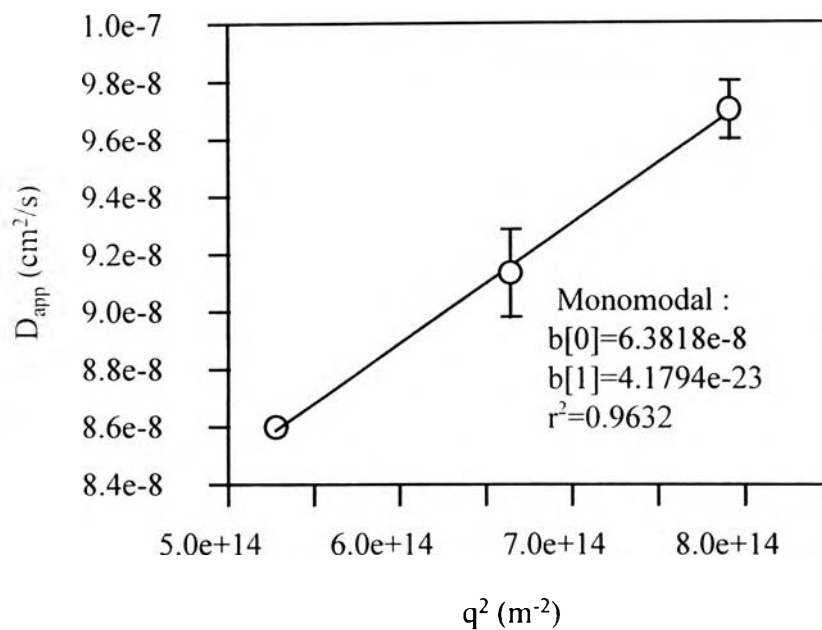
Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	Z <sub>Ave</sub> (nm)	Poly-dispersity	In Range	Merit	D <sub>app</sub> $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	2.30	31.1	52.9	21.5	0.760	91.6	29.9	17.9
	2.30	30.1	51.0	21.0	0.746	94.2	29.6	18.4
	2.30	30.7	52.1	21.4	0.752	94.9	29.7	18.1
Average	2.30	30.6	52.0	21.3	0.753	93.6	29.7	18.1
S.D.	0.0000	0.5033	0.9539	0.2644	0.0070	1.7388	0.1528	0.2517
90	2.00	28.8	47.2	20.7	0.679	92.0	25.4	19.3
	2.00	27.0	43.9	19.6	0.664	97.0	25.0	20.6
	2.00	28.2	46.1	20.3	0.673	93.7	25.2	19.7
Average	2.00	28.0	45.7	20.2	0.672	94.2	25.2	19.9
S.D.	0.0000	0.9165	1.6803	0.5568	0.0075	2.5423	0.2000	0.6658
105	1.00	24.0	40.8	16.6	0.757	90.4	25.9	23.1
	1.00	23.7	40.3	16.5	0.754	95.9	26.2	23.4
	1.00	23.2	39.3	16.2	0.747	94.9	26.4	23.9
Average	1.00	23.6	40.1	16.4	0.753	93.7	26.2	23.5
S.D.	0.0000	0.4041	0.7638	0.2082	0.0051	2.9297	0.2517	0.4041
120	0.70	21.6	37.0	14.8	0.777	97.3	26.3	25.7
	0.70	21.9	37.7	15.0	0.783	95.2	26.2	25.3
	0.70	22.2	38.1	15.2	0.778	95.5	25.6	25.0
Average	0.70	21.9	37.6	15.0	0.779	96.0	26.0	25.3
S.D.	0.0000	0.3000	0.5568	0.2000	0.0032	1.1358	0.3786	0.3512

**TableE-4.7 : 0.06%wt HPC/ 0.16%wt HTAB**

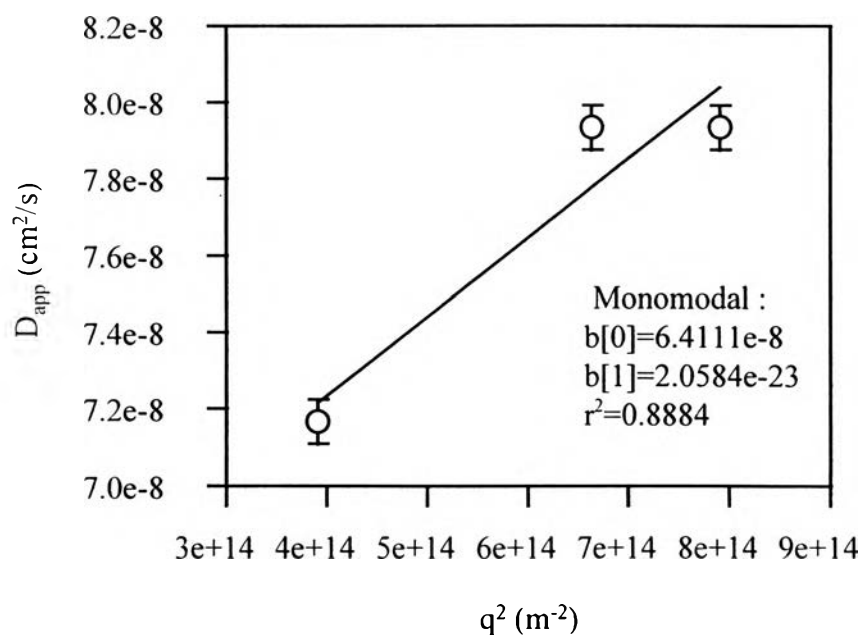
Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	ZAve (nm)	Poly-dispersity	In Range	Merit	Dapp $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	2.50	37.0	63.7	25.3	0.788	95.5	26.0	15.0
	2.50	36.0	61.8	24.7	0.781	93.3	26.5	15.4
	2.50	36.0	61.9	24.7	0.782	93.1	25.6	15.4
	Average	2.50	36.3	62.5	24.9	0.784	94.0	26.0
S.D.	0.0000	0.5774	1.0693	0.3464	0.0038	1.3317	0.4509	0.2309
90	1.70	31.4	53.7	21.6	0.772	96.4	29.9	17.7
	1.70	32.1	54.8	22.1	0.773	97.4	29.6	17.3
	1.70	33.0	56.7	22.6	0.785	95.3	28.9	16.8
	Average	1.70	32.2	55.1	22.1	0.777	96.4	29.5
S.D.	0.0000	0.8021	1.5177	0.5000	0.0072	1.0504	0.5132	0.4509
105	1.00	28.3	49.6	18.8	0.842	95.4	26.8	19.6
	1.00	28.0	49.1	18.7	0.839	94.7	27.2	19.8
	1.00	28.7	50.5	19.1	0.845	96.4	26.9	19.3
	Average	1.00	28.3	49.7	18.9	0.842	95.5	27.0
S.D.	0.0000	0.3512	0.7095	0.2082	0.0030	0.8544	0.2082	0.2517
120	1.00	27.1	46.2	18.8	0.761	97.7	23.0	20.4
	1.00	27.6	47.3	19.0	0.776	94.7	23.6	20.1
	1.00	28.0	47.9	19.2	0.778	94.1	24.0	19.9
	Average	1.00	27.6	47.1	19.0	0.772	95.5	23.5
S.D.	0.0000	0.4509	0.8622	0.2000	0.0093	1.9287	0.5033	0.2517

**TableE-4.8 : 0.06%wt HPC/ 0.20%wt HTAB**

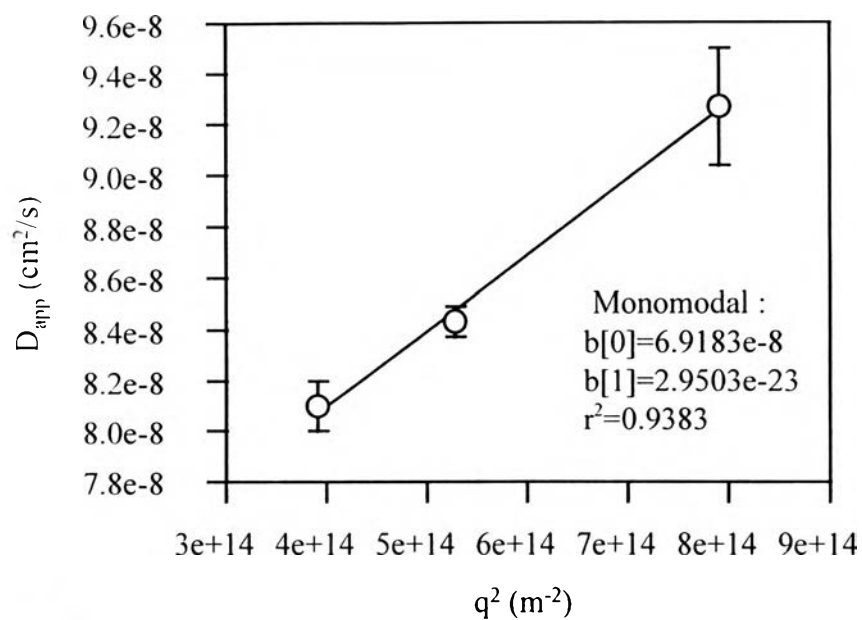
Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	ZAve (nm)	Poly-dispersity	In Range	Merit	Dapp $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	2.70	40.1	69.0	27.4	0.786	94.7	31.3	13.8
	2.70	38.7	61.3	26.6	0.777	93.5	29.8	14.3
	2.70	40.3	69.3	27.5	0.791	93.5	30.9	13.8
	Average	2.70	39.7	66.5	27.2	0.785	93.9	30.7
S.D.	0.0000	0.8718	4.5347	0.4933	0.0071	0.6928	0.7767	0.2887
90	1.70	33.5	57.7	22.8	0.792	94.4	27.8	16.6
	1.70	34.4	59.4	23.4	0.796	95.6	28.3	16.1
	1.70	33.8	58.3	23.1	0.792	94.4	28.0	16.4
	Average	1.70	33.9	58.5	23.1	0.793	94.8	28.0
S.D.	0.0000	0.4583	0.8622	0.3000	0.0073	0.6928	0.2517	0.2517
105	1.20	32.2	56.2	21.6	0.826	95.6	27.6	17.2
	1.20	32.4	56.6	21.7	0.830	97.0	28.1	17.1
	1.20	31.5	54.8	21.2	0.819	95.1	28.0	17.6
	Average	1.20	32.0	55.9	21.5	0.825	95.9	27.9
S.D.	0.0000	0.4726	0.9452	0.2646	0.0056	0.9849	0.2646	0.2646
120	0.90	28.2	49.1	19.0	0.821	97.1	29.2	19.7
	0.90	28.1	48.8	19.0	0.814	95.8	28.6	19.7
	0.90	29.7	52.0	19.8	0.839	91.7	28.4	18.7
	Average	0.90	28.7	50.0	19.3	0.825	94.9	28.7
S.D.	0.0000	0.8963	1.7673	0.4619	0.0129	2.8184	0.4163	0.5774



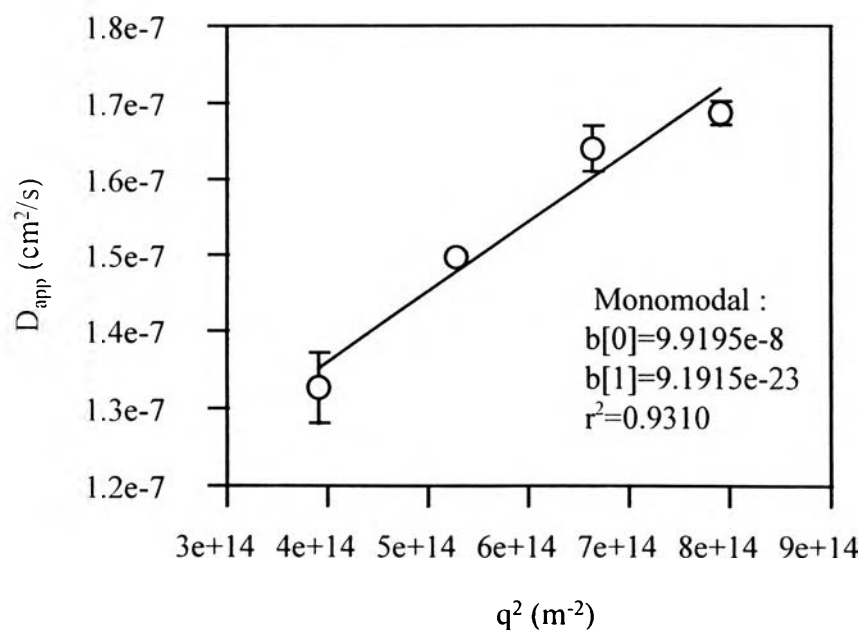
**FigureE-4.1:** Apparent diffusion coefficient for 0.06%wt HPC/ 0.01%wt HTAB solutions as a function of wave vector square at 30°C.



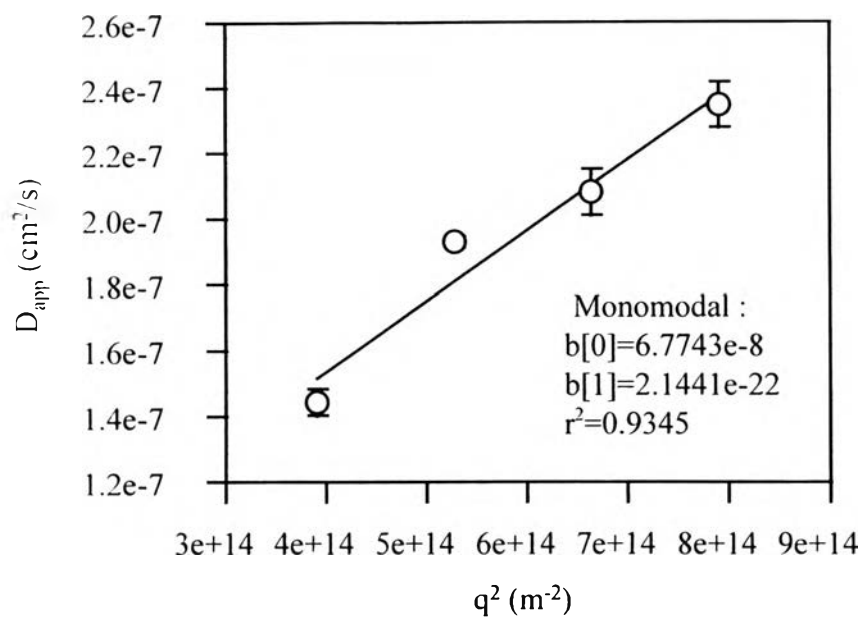
**FigureE-4.2:** Apparent diffusion coefficient for 0.06%wt HPC/ 0.02%wt HTAB solutions as a function of wave vector square at 30°C.



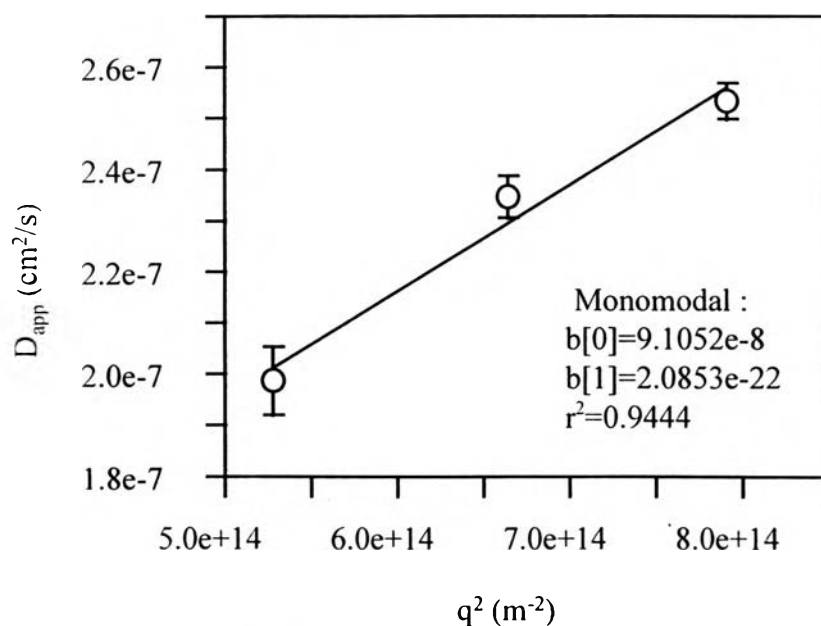
**FigureE-4.3:** Apparent diffusion coefficient for 0.06%wt HPC/ 0.03%wt HTAB as a function of wave vector square at 30°C.



**FigureE-4.4:** Apparent diffusion coefficient for 0.06%wt HPC/ 0.04%wt HTAB solutions as a function of wave vector square at 30°C.

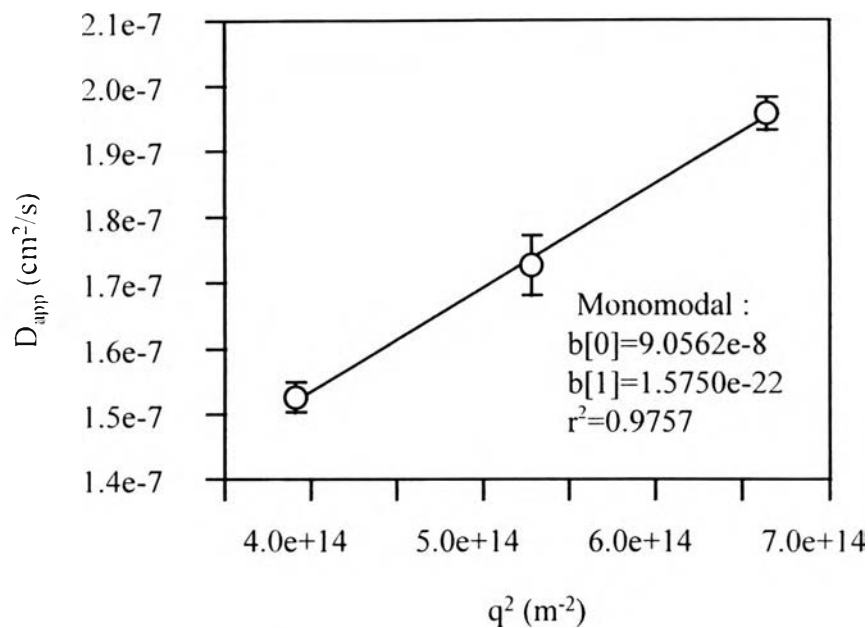


**FigureE-4.5:** Apparent diffusion coefficient for 0.06%wt HPC/ 0.08%wt HTAB solutions as a function of wave vector square at 30°C.

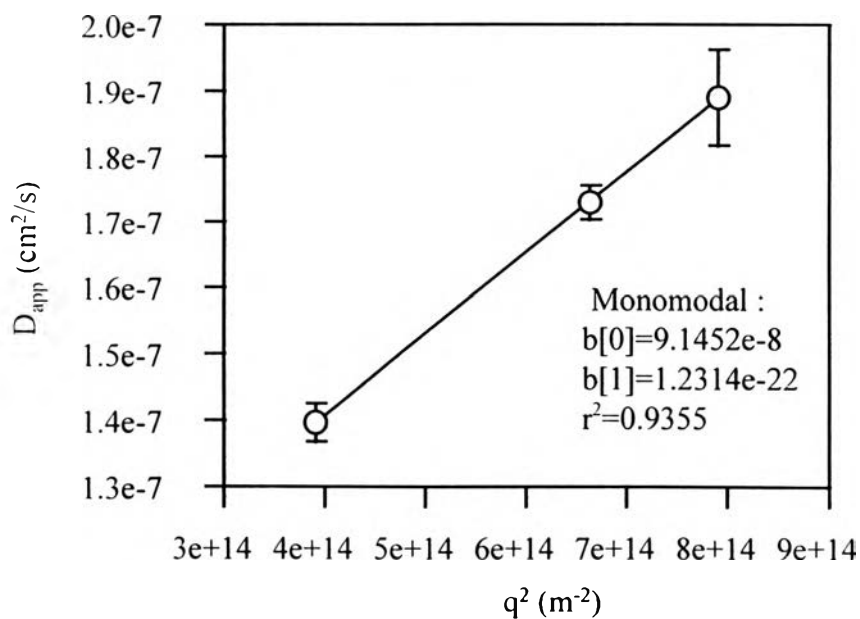


**FigureE-4.6:** Apparent diffusion coefficient for 0.06%wt HPC/ 0.12%wt HTAB solutions as a function of wave vector square at 30°C.





**FigureE-4.7:** Apparent diffusion coefficient for 0.06%wt HPC/ 0.16%wt HTAB as a function of wave vector square at 30°C.



**FigureE-4.8:** Apparent diffusion coefficient for 0.06%wt HPC/ 0.20%wt HTAB solutions as a function of wave vector square at 30°C.

**TableE-4.9 : 0.10%wt HPC/ 0.01%wt HTAB**

Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	Z <sub>Ave</sub> (nm)	Poly-dispersity	In Range	Merit	D <sub>app</sub> $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	4.10	75.0	114.6	57.3	0.553	97.1	31.6	7.4
	4.10	79.0	124.0	59.3	0.594	95.9	31.6	7.0
	4.10	75.4	116.6	57.2	0.570	95.7	32.6	7.4
	Average	4.10	76.5	118.4	57.9	0.572	96.2	31.9
S.D.	0.0000	2.2030	4.9518	1.1846	0.0206	0.7572	0.5774	0.2309
90	4.20	69.1	101.9	54.2	0.500	98.7	43.3	8.0
	4.20	70.2	105.1	54.5	0.523	96.4	44.2	8.1
	4.20	69.3	103	54.1	0.512	97.9	43.7	8.0
	Average	4.20	69.5	103.3	54.3	0.512	97.7	43.7
S.D.	0.0000	0.5859	1.6258	0.2082	0.0115	1.1676	0.4509	0.0577
105	2.20	65.2	99.9	49.8	0.555	98.5	40.7	8.5
	2.20	65.5	100.0	50.2	0.555	97.1	40.6	8.5
	2.20	65.8	100.8	50.3	0.555	96.4	41.4	8.4
	Average	2.20	65.5	100.2	50.1	0.555	97.3	40.9
S.D.	0.0000	0.3000	0.4933	0.2646	0.0000	1.0693	0.4359	0.0577
120	1.70	62.4	95.5	47.8	0.553	97.0	39.1	8.9
	1.70	62.8	96.5	47.8	0.562	98.1	39.3	8.8
	1.70	61.8	94.8	47.1	0.558	97.3	38.9	9.0
	Average	1.70	62.3	95.6	47.6	0.558	97.5	39.1
S.D.	0.0000	0.5033	0.8544	0.4041	0.0045	0.5686	0.2000	0.1000

**TableE-4.10 : 0.10%wt HPC/ 0.02%wt HTAB**

Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	Z <sub>Ave</sub> (nm)	Poly-dispersity	In Range	Merit	D <sub>app</sub> $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	5.10	87.4	131.8	67.4	0.534	93.3	38.6	6.4
	5.10	86.3	129.9	66.8	0.530	91.5	35.4	6.4
	5.10	86.2	129.4	66.8	0.526	92.7	36.3	6.4
	Average	5.10	86.6	130.4	67.0	0.530	92.5	36.8
S.D.	0.000	0.6658	1.2662	0.3464	0.0040	0.9165	1.6503	0.0000
90	3.60	82.9	126.4	63.5	0.549	96.9	46.7	6.7
	3.60	82.5	125.4	63.4	0.543	96.9	45.3	6.7
	3.60	81.1	123.1	62.4	0.542	95.7	45.2	6.8
	Average	3.60	82.2	125.0	63.1	0.545	96.5	45.7
S.D.	0.0000	0.9452	1.6921	0.6083	0.0038	0.6928	0.8386	0.0577
105	4.10	74.8	109.7	58.8	0.494	98.1	46.6	7.4
	4.10	76.1	112.2	59.7	0.501	94.8	46.6	7.3
	4.10	74.2	108.7	58.4	0.493	98.4	45.5	7.5
	Average	4.10	75.0	110.2	59.0	0.496	97.1	46.2
S.D.	0.0000	0.9713	1.8028	0.6658	0.0044	1.9975	0.6351	0.1000
120	1.90	70.7	108.0	54.1	0.551	97.6	41.7	7.9
	1.90	70.7	108.0	54.2	0.551	98.7	41.5	7.8
	1.90	70.5	106.9	54.3	0.539	98.6	41.1	7.9
	Average	1.90	70.6	107.6	54.2	0.547	98.3	41.4
S.D.	0.0000	0.1155	0.6351	0.1000	0.0069	0.6083	0.3055	0.0577

**TableE-4.11 : 0.10%wt HPC/ 0.03%wt HTAB**

Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	Z <sub>Ave</sub> (nm)	Poly-dispersity	In Range	Merit	D <sub>app</sub> $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	4.30	76.6	124.1	55.8	0.653	95.5	41.1	7.2
	4.30	75.0	120.9	55.0	0.642	96.2	37.0	7.4
	4.30	75.6	121.9	55.3	0.644	96.4	40.4	7.3
Average	4.30	75.7	122.3	55.4	0.646	96.0	39.5	7.3
S.D.	0.0000	0.8083	1.6371	0.4041	0.0059	0.4726	2.1932	0.1000
90	2.90	69.9	112.6	51.3	0.641	97.5	47.9	7.9
	2.90	70.5	114.2	51.4	0.652	97.8	47.5	7.9
	2.90	70.4	113.8	51.5	0.647	98.3	47.2	7.9
Average	2.90	70.3	113.5	51.4	0.647	97.9	47.5	7.9
S.D.	0.0000	0.3215	0.8327	0.1000	0.0055	0.4041	0.3512	0.0000
105	2.0	63.8	102.6	46.8	0.640	44.5	99.0	8.7
	2.0	63.6	101.9	46.8	0.632	44.7	99.2	8.7
	2.0	63.7	104.9	47.7	0.642	45.5	98.6	8.5
Average	2.0	63.7	103.1	47.1	0.638	44.9	98.9	8.6
S.D.	0.0000	0.1000	1.5695	0.5196	0.0053	0.5292	0.3055	0.1155
120	1.60	60.6	97.5	44.5	0.639	46.5	99.3	9.2
	1.60	60.8	97.6	44.7	0.634	44.9	98.5	9.1
	1.60	61.4	98.4	45.2	0.632	44.7	98.6	9.0
Average	1.60	60.9	97.8	44.8	0.635	45.4	98.8	9.1
S.D.	0.0000	0.4163	0.4933	0.3606	0.0036	0.9866	0.4359	0.1000

**TableE-4.12 : 0.10%wt HPC/ 0.04%wt HTAB**

Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	Z <sub>Ave</sub> (nm)	Poly-dispersity	In Range	Merit	D <sub>app</sub> $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	3.60	61.4	104.6	42.5	0.760	97.0	97.0	9.0
	3.60	60.4	102.6	41.9	0.758	94.8	94.8	9.2
	3.60	63.4	108.6	43.5	0.779	95.7	95.7	8.8
Average	3.60	61.7	105.3	42.6	0.766	95.8	95.8	9.0
S.D.	0.0000	1.5275	3.0551	0.8083	0.0116	1.1060	1.1060	0.2000
90	2.0	52.8	90.3	36.3	0.774	98.9	46.8	10.5
	2.0	54.1	93.2	36.9	0.790	97.3	47.3	10.3
	2.0	51.7	88.4	35.6	0.771	96.7	45.2	10.7
Average	2.0	52.9	90.6	36.3	0.778	97.6	46.4	10.5
S.D.	0.0000	1.2014	2.4173	0.6506	0.0102	1.1372	1.0970	0.2000
105	1.60	47.0	78.7	33.1	0.723	97.7	44.1	11.8
	1.60	47.4	79.3	33.4	0.722	97.2	43.6	11.7
	1.60	46.3	77.2	32.8	0.712	98.7	42.6	12.0
Average	1.60	46.9	78.4	33.1	0.719	97.9	43.4	11.8
S.D.	0.0000	0.5568	1.0817	0.3000	0.0061	0.7638	0.7638	0.1528
120	1.20	47.7	80.5	33.3	0.742	43.2	98.3	11.6
	1.20	48.1	81.4	33.6	0.744	42.8	96.8	11.5
	1.20	46.5	78.1	32.7	0.729	42.2	98.1	11.9
Average	1.20	47.4	80.0	33.2	0.738	42.7	97.7	11.7
S.D.	0.0000	0.8327	1.7059	0.4583	0.0081	0.5033	0.8145	0.2082

**TableE-4.13 : 0.10%wt HPC/ 0.08%wt HTAB**

Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	ZAve (nm)	Poly-dispersity	In Range	Merit	$D_{app} \times 10^{-8}$ ( $cm^2/s$ )
75	6.00	119.8	217.7	75.4	0.960	86.6	42.9	4.6
	6.00	111.8	201.4	71.5	0.927	88.2	41.2	5.0
	6.00	115.4	208.6	73.4	0.939	87.0	40.9	4.8
	Average	6.00	115.7	209.2	73.4	0.942	87.3	41.7
S.D.	0.0000	4.0067	8.1684	1.9502	0.0167	0.8327	1.0786	0.2000
90	3.90	104.2	189.7	65.5	0.964	84.8	32.3	5.3
	3.90	98.4	177.8	62.6	0.939	84.9	31.9	5.6
	3.90	96.1	173.3	61.4	0.929	88.0	31.7	5.8
	Average	3.90	99.6	180.3	63.2	0.944	85.9	32.0
S.D.	0.0000	4.1741	8.4737	2.1079	0.0180	1.8193	0.3055	0.2517
105	2.10	72.9	133.7	45.1	0.995	80.3	34.7	7.6
	2.10	87.8	161.3	54.2	1.000	75.9	29.9	6.3
	2.10	86.3	158.5	53.3	1.000	72.0	37.7	6.4
	Average	2.10	82.3	151.2	50.9	0.998	76.1	34.1
S.D.	0.0000	8.2039	15.1912	5.0143	0.0029	4.1525	3.9345	0.7234
120	3.90	87.0	146.1	61.1	0.729	79.6	32.7	6.4
	3.90	88.3	148.7	61.9	0.735	85.2	33.6	6.3
	3.90	94.9	161.2	65.8	0.757	83.0	35.4	5.9
	Average	3.90	90.1	152.0	62.9	0.740	82.6	33.9
S.D.	0.0000	4.2360	8.0728	2.5146	0.0147	2.8213	1.3748	0.2646

**TableE-4.14 : 0.10%wt HPC/ 0.12%wt HTAB**

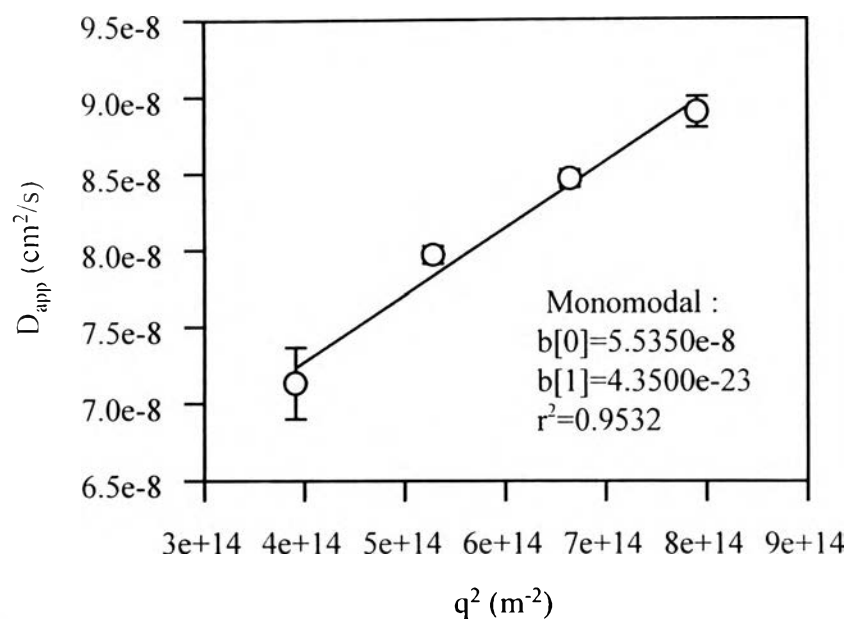
Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	ZAve (nm)	Poly-dispersity	In Range	Merit	$D_{app} \times 10^{-8}$ ( $cm^2/s$ )
75	2.60	39.4	69.6	25.9	0.868	87.0	18.3	14.1
	2.60	42.3	75.7	27.4	0.903	87.7	18.1	13.1
	2.60	44.0	79.2	28.1	0.929	78.5	25.8	12.6
	Average	2.60	41.9	74.8	27.1	0.900	84.4	20.7
S.D.	0.0000	2.3259	4.8583	1.1240	0.0306	5.1215	4.3890	0.7638
90	1.90	28.1	46.8	19.9	0.711	92.1	31.8	19.8
	1.90	31.8	54.4	22.0	0.769	86.4	33.0	17.4
	1.90	28.9	48.5	20.3	0.728	84.6	32.3	19.2
	Average	1.90	29.6	49.9	20.7	0.736	87.7	32.4
S.D.	0.0000	1.9468	3.9887	1.1150	0.0298	3.9154	0.6028	1.2490
105	1.00	21.1	35.6	14.7	0.744	89.4	33.1	26.3
	1.00	21.7	36.9	15.0	0.759	72.1	31.9	25.6
	1.00	22.9	39.3	15.6	0.786	82.3	32.6	24.3
	Average	1.00	21.9	37.3	15.1	0.763	81.3	32.5
S.D.	0.0000	0.9165	1.8771	0.4583	0.0213	8.6962	0.6028	1.0149
120	0.90	22.1	37.2	15.4	0.739	89.2	25.6	25.2
	0.90	22.7	38.5	15.8	0.751	91.1	30.0	24.4
	0.90	22.6	38.3	15.7	0.751	91.7	29.8	24.6
	Average	0.90	22.5	38.0	15.6	0.747	90.7	28.5
S.D.	0.0000	0.3215	0.7000	0.2082	0.0069	1.3051	2.4846	0.4163

**TableE-4.15** : 0.10%wt HPC/ 0.16%wt HTAB

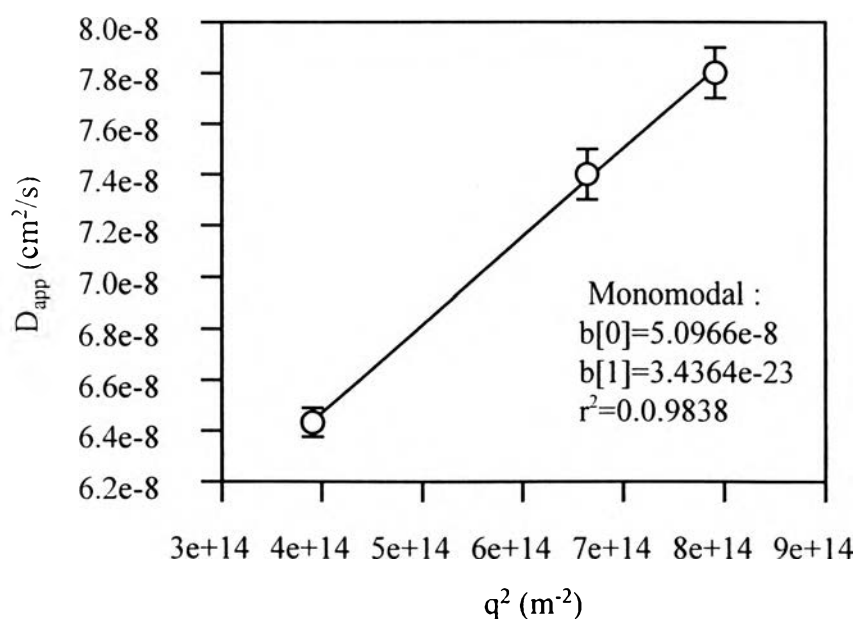
Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	Z <sub>Ave</sub> (nm)	Poly-dispersity	In Range	Merit	D <sub>app</sub> $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	2.80	35.8	61.4	24.5	0.781	92.8	38.5	15.5
	2.80	33.8	57.4	23.5	0.755	94.1	38.8	16.4
	2.80	36.5	62.7	24.9	0.789	93.4	39.3	15.2
Average	2.80	35.4	60.5	24.3	0.775	93.4	38.9	15.7
S.D.	0.0000	1.4012	2.7622	0.7211	0.0178	0.6506	0.4041	0.6245
90	1.50	26.5	45.4	18.1	0.780	94.6	37.6	21.0
	1.50	25.8	44.0	17.8	0.769	94.2	37.2	21.5
	1.50	26.1	44.7	18.0	0.774	93.9	38.3	21.3
Average	1.50	26.1	44.7	18.0	0.774	94.2	37.7	21.3
S.D.	0.0000	0.3512	0.7000	0.1528	0.0055	0.3512	0.5568	0.2517
105	1.20	21.7	35.8	15.5	0.693	94.4	33.4	25.6
	1.20	22.7	37.8	16.1	0.710	93.3	33.5	24.4
	1.20	22.6	37.5	16.0	0.719	95.8	31.2	24.6
Average	1.20	22.3	37.0	15.9	0.707	94.5	32.7	24.9
S.D.	0.0000	0.5508	1.0786	0.3215	0.0132	1.2530	1.3000	0.6429
120	0.80	18.9	31.5	13.4	0.715	96.4	30.6	29.4
	0.80	18.7	31.2	13.4	0.722	95.7	32.2	29.7
	0.80	18.7	31.3	13.3	0.711	95.8	31.2	29.6
Average	0.80	22.3	37.0	15.9	0.707	94.5	32.7	24.9
S.D.	0.0000	0.5508	1.0786	0.3215	0.0132	1.2530	1.3000	0.6429

**TableE-4.16** : 0.10%wt HPC/ 0.20%wt HTAB

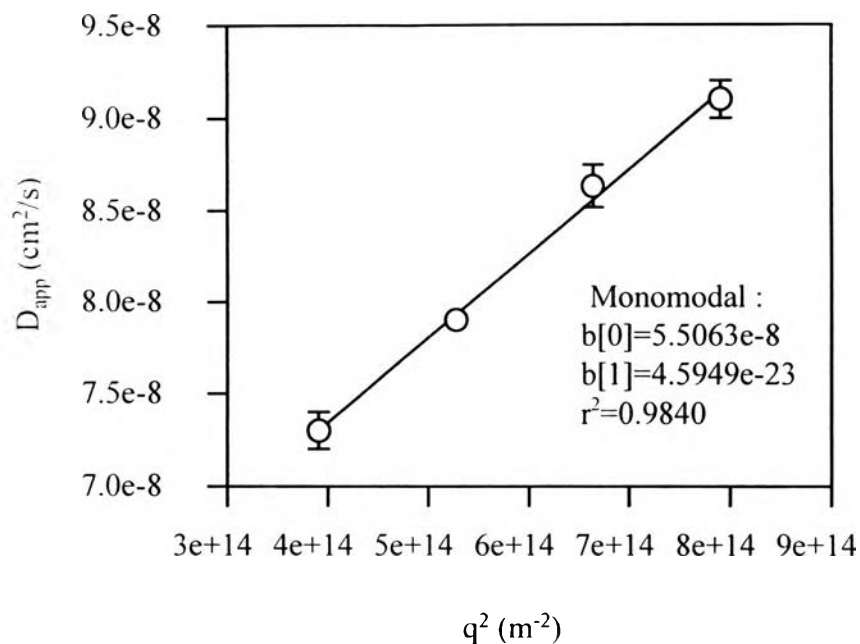
Angle (degree)	Sample ( $\mu$ s)	Mean (nm)	Width	Z <sub>Ave</sub> (nm)	Poly-dispersity	In Range	Merit	D <sub>app</sub> $\times 10^{-8}$ (cm <sup>2</sup> /s)
75	2.70	41.8	73.4	27.8	0.844	90.9	34.8	13.3
	2.70	46.4	82.9	30.1	0.895	83.0	33.6	12.0
	2.70	45.9	81.7	29.8	0.891	83.5	34.8	12.1
Average	2.70	44.7	79.3	29.2	0.877	85.8	34.4	12.5
S.D.	0.0000	2.5239	5.1733	1.2503	0.0284	4.4238	0.6928	0.7234
90	1.80	34.9	60.7	23.5	0.816	84.5	36.1	15.9
	1.80	34.9	60.7	23.6	0.815	87.9	36.6	15.9
	1.80	34.7	60.0	23.5	0.807	92.0	36.8	16.0
Average	1.80	34.8	60.5	23.5	0.813	88.1	36.5	15.9
S.D.	0.0000	0.1155	0.4041	0.0577	0.0049	3.7554	0.3606	0.0577
105	1.40	29.3	49.6	20.4	0.750	94.4	37.8	19.0
	1.40	29.2	49.4	20.3	0.748	91.4	36.8	19.0
	1.40	29.4	49.8	20.4	0.752	92.0	36.1	18.9
Average	1.40	29.3	49.6	20.4	0.750	92.6	36.9	19.0
S.D.	0.0000	0.1000	0.2000	0.0577	0.0020	1.5875	0.8544	0.0577
120	0.80	27.7	47.7	18.9	0.792	86.6	30.2	20.1
	0.80	28.6	49.5	19.4	0.804	88.7	31.0	19.4
	0.80	27.5	47.2	18.8	0.786	89.2	31.1	20.2
Average	0.80	27.9	48.1	19.0	0.794	88.2	30.8	19.9
S.D.	0.0000	0.5859	1.2097	0.3215	0.0092	1.3796	0.4933	0.4359



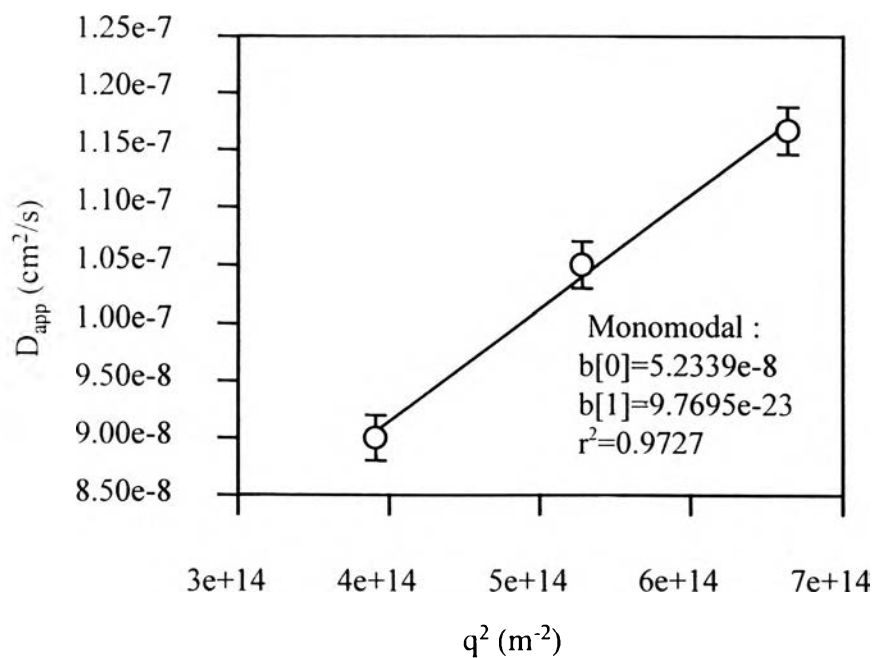
**FigureE-4.9:** Apparent diffusion coefficient for 0.10%wt HPC/ 0.01%wt HTAB solutions as a function of wave vector square at 30°C.



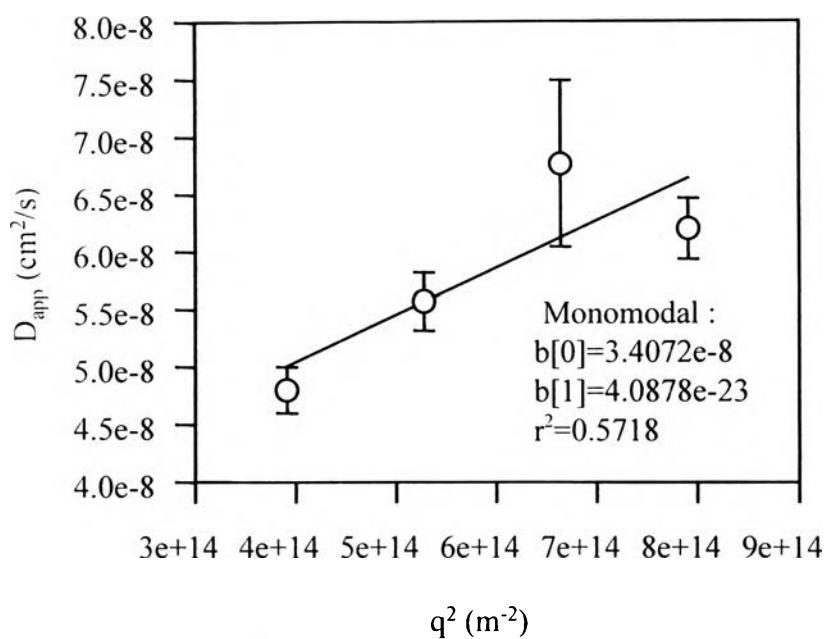
**FigureE-4.10:** Apparent diffusion coefficient for 0.10%wt HPC/ 0.02%wt HTAB solutions as a function of wave vector square at 30°C.



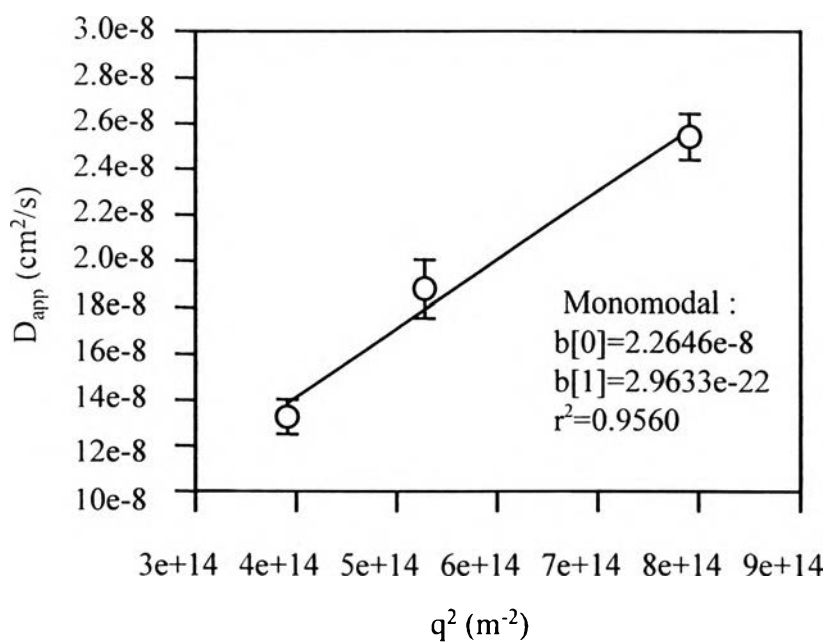
**FigureE-4.11:** Apparent diffusion coefficient for 0.10%wt HPC/ 0.03%wt HTAB as a function of wave vector square at 30°C.



**FigureE-4.12:** Apparent diffusion coefficient for 0.10%wt HPC/ 0.04%wt HTAB solutions as a function of wave vector square at 30°C.

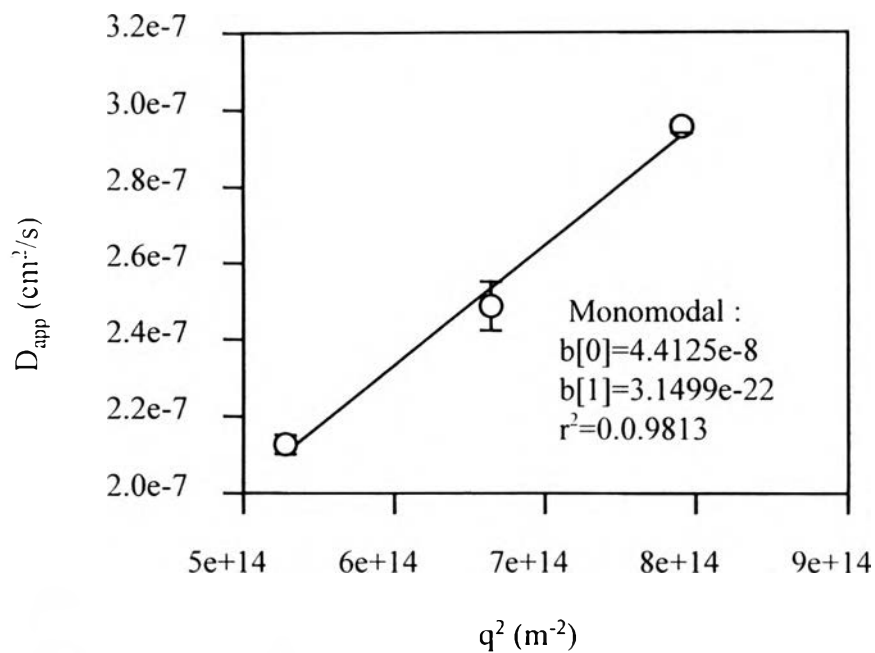


**FigureE-4.13:** Apparent diffusion coefficient for 0.10%wt HPC/ 0.08%wt HTAB solutions as a function of wave vector square at 30°C.

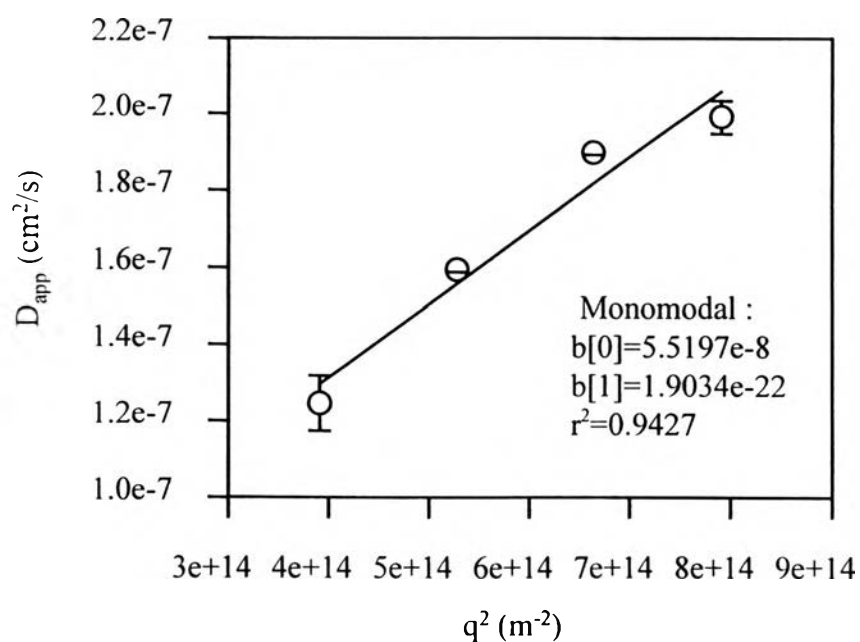


**FigureE-4.14:** Apparent diffusion coefficient for 0.10%wt HPC/ 0.12%wt HTAB solutions as a function of wave vector square at 30°C.





**FigureE-4.15:** Apparent diffusion coefficient for 0.10%wt HPC/ 0.16%wt HTAB as a function of wave vector square at 30°C.



**FigureE-4.16:** Apparent diffusion coefficient for 0.10%wt HPC/ 0.20%wt HTAB solutions as a function of wave vector square at 30°C.

E-5) Center of mass diffusion coefficient for complex solution as a function of surfactant concentration at 30°C (Figure 3.14)

C <sub>HTAB</sub> (%wt)	C <sub>HPC</sub> = 0.06%wt		C <sub>HPC</sub> = 0.10%wt	
	DCM (cm <sup>2</sup> /s)	R <sub>h</sub> (m)	DCM (cm <sup>2</sup> /s)	R <sub>h</sub> (m)
0.00	7.1100e-8	3.9028e-8	7.6700e-8	3.6178e-8
0.01	6.3800e-8	4.3493e-8	5.5300e-8	5.0179e-8
0.02	6.4100e-8	4.3290e-8	5.1000e-8	5.4409e-8
0.03	6.9200e-8	4.0099e-8	5.5100e-8	5.0361e-8
0.04	9.9200e-8	2.7973e-8	5.2300e-8	5.3057e-8
0.08	6.7700e-8	4.0988e-8	3.4100e-8	8.1375e-8
0.12	9.1100e-8	3.0460e-8	2.2600e-8	1.2278e-7
0.16	9.0600e-8	3.0628e-8	4.4100e-8	6.2922e-8
0.20	9.1400e-8	3.0360e-8	5.5200e-8	5.0270e-8

E-6) Polydispersity of relaxation time for complex solutions at 90° as a function of surfactant concentration (Figure 3.15)

C <sub>HTAB</sub> (%wt)	C <sub>HPC</sub> = 0.06%wt					C <sub>HPC</sub> = 0.10%wt				
	Polydispersity			Ave.	S.D.	Polydispersity			Ave.	S.D.
	No.1	No.2	No.3			No.1	No.2	No.3		
0.01	0.506	0.508	0.509	0.508	0.0015	0.500	0.523	0.512	0.512	0.0115
0.02	0.524	0.515	0.536	0.525	0.0105	0.549	0.543	0.542	0.545	0.0038
0.03	0.631	0.635	0.624	0.630	0.0056	0.641	0.652	0.647	0.647	0.0055
0.04	0.711	0.712	0.698	0.707	0.0078	0.774	0.790	0.771	0.778	0.0102
0.08	0.829	0.825	0.822	0.825	0.0035	0.964	0.939	0.929	0.944	0.0180
0.12	0.679	0.664	0.673	0.672	0.0075	0.711	0.769	0.728	0.736	0.0298
0.16	0.772	0.773	0.785	0.777	0.0072	0.780	0.761	0.774	0.774	0.0055
0.20	0.792	0.796	0.792	0.793	0.0073	0.816	0.815	0.807	0.813	0.0049

## Appendix F

### Data from static light scattering

F-1) Data of HPC solutions for different HPC concentrations at various angles.

Angle (Degree)	(Kc/R) $\times 10^3$ of HPC				
	0.02%wt	0.05%wt	0.10%wt	0.15%wt	0.20%wt
75.0	0.00410	0.00441	0.00882	0.00545	0.00598
80.0	0.00456	0.00460	0.00919	0.00549	0.00601
85.0	0.00424	0.00454	0.00908	0.00554	0.00600
90.0	0.00443	0.00463	0.00531	0.00573	0.00622
95.0	0.00499	0.00543	0.00622	0.00663	0.00702
100.0	0.00460	0.00503	0.00560	0.00607	0.00655
105.0	0.00484	0.00532	0.00588	0.00629	0.00687
110.0	0.00495	0.00550	0.00615	0.00654	0.00700
115.0	0.00508	0.00556	0.00620	0.00654	0.00706
120.0	0.00530	0.00558	0.00625	0.00662	0.00719

## Appendix G

### Data from Rheometry

G-1) Data of viscoelastic loss tangent for different polymer concentrations as a function of temperature.

**Table G-1.1** : 3.0%wt HPC (Figure 3.17 (a))

Temperature (°C)	Tan $\delta$			
	$\omega=0.2$ rad/s	$\omega=0.5$ rad/s	$\omega=1.0$ rad/s	$\omega=2.0$ rad/s
40	2.02	4.58	5.70	5.67
41	1.75	3.76	5.00	5.24
42	1.73	2.74	4.10	4.61
43	1.43	2.81	3.40	3.79
44	1.23	1.74	2.13	2.67
45	0.60	0.87	1.05	1.35
46	0.39	0.48	0.61	0.72
47	0.34	0.35	0.39	0.46
48	0.25	0.26	0.27	0.30
49	0.32	0.34	0.35	0.39
50	0.28	0.28	0.31	0.32
51	0.24	0.25	0.26	0.30
52	0.23	0.24	0.25	0.27
53	0.20	0.22	0.23	0.24
54	0.20	0.21	0.23	0.24
55	0.39	0.39	0.40	0.44
56	0.48	0.51	0.51	0.53
57	0.67	0.67	0.66	0.67
58	0.75	0.73	0.73	0.70
60	0.56	0.52	0.54	0.53

**Table G-1.2: 4.0%wt HPC (Figure 3.17 (b))**

Temperature (°C)	Tan $\delta$			
	$\omega=0.2$ rad/s	$\omega=0.5$ rad/s	$\omega=1.0$ rad/s	$\omega=2.0$ rad/s
40	2.61	3.72	3.89	3.96
42	2.33	3.76	3.08	3.10
44	1.78	2.01	2.38	2.27
45	0.86	1.03	1.12	1.19
46	0.80	1.07	1.09	1.15
47	0.59	0.65	0.70	0.75
48	0.29	0.30	0.31	0.32
49	0.23	0.23	0.24	0.25
50	0.21	0.22	0.21	0.24
52	0.21	0.20	0.20	0.21
54	0.19	0.19	0.19	0.19

**Table G-1.3 : 5.0%wt HPC (Figure 3.17 (c))**

Temperature (°C)	Tan $\delta$			
	$\omega=0.2$ rad/s	$\omega=0.5$ rad/s	$\omega=1.0$ rad/s	$\omega=2.0$ rad/s
44	0.80	1.11	1.24	1.71
45	0.69	1.19	1.54	1.27
46	0.74	0.81	0.84	0.87
47	0.54	0.45	0.49	0.51
48	0.33	0.27	0.29	0.29
49	0.24	0.23	0.17	0.23
50	0.16	0.21	0.18	0.22
52	0.23	0.22	0.21	0.24
54	0.18	0.16	0.13	0.17

G-2) Data of G' and G'' vs frequency for different polymer concentrations at the gel point showing the power law behavior.

Frequency (rad/s)	$C_{HPC}=3.0\%wt$ at 48°C		$C_{HPC}=4.0\%wt$ at 48°C		$C_{HPC}=5.0\%wt$ at 48°C	
	G' (dyne/cm <sup>2</sup> )	G'' (dyne/cm <sup>2</sup> )	G' (dyne/cm <sup>2</sup> )	G'' (dyne/cm <sup>2</sup> )	G' (dyne/cm <sup>2</sup> )	G'' (dyne/cm <sup>2</sup> )
0.10	6.31	1.71	25.10	7.35	112.00	35.90
0.13	6.10	1.54	25.10	7.17	114.00	29.70
0.16	6.05	1.52	25.70	7.27	120.00	33.40
0.20	6.08	1.49	25.70	7.34	126.00	41.30
0.25	6.25	1.52	27.20	7.30	126.00	39.80
0.32	6.24	1.51	28.00	7.91	141.00	40.30
0.40	6.36	1.56	30.10	8.81	140.00	39.00
0.50	6.46	1.68	31.20	9.44	146.00	39.40
0.63	6.58	1.75	32.20	9.87	146.00	48.10
0.79	6.71	1.89	33.60	10.40	158.00	55.70
1.00	7.01	1.89	34.90	10.80	160.00	46.20

G-3) Data of G' and G'' vs frequency for different polymer concentrations at various temperatures.

**Table G-3.1** : 3.0%wt HPC, Strain = 15%

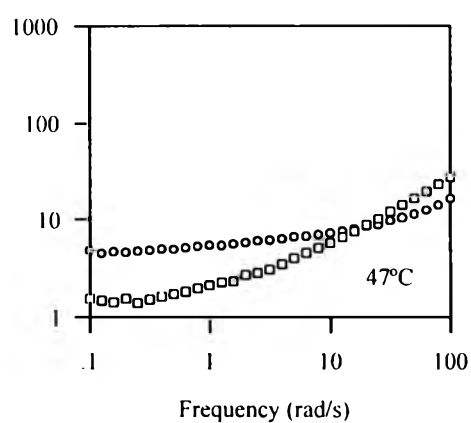
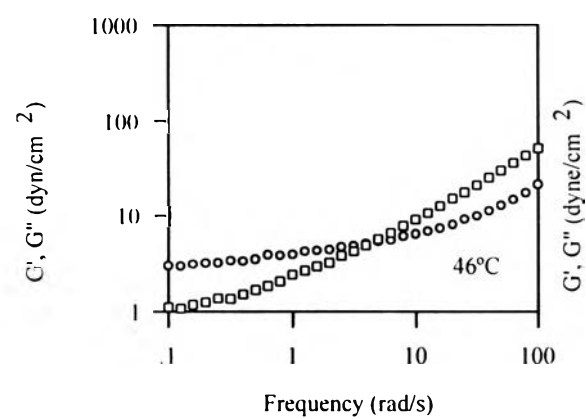
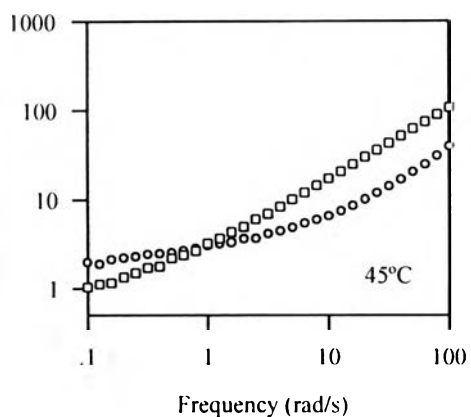
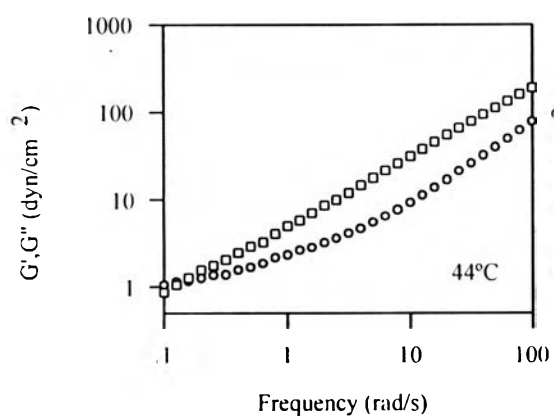
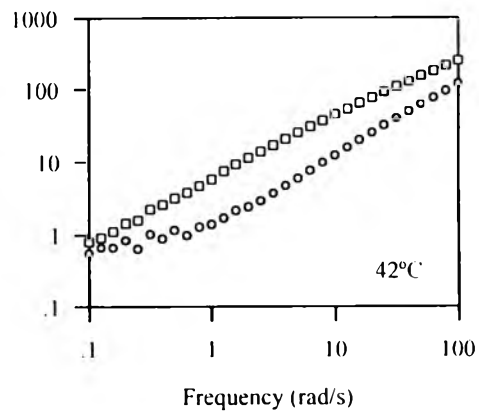
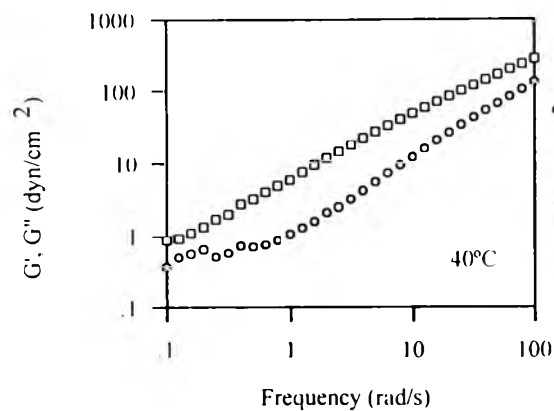
Frequency (rad/s)	T = 40°C		T = 42°C		T = 44°C		T = 45°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	0.36	0.87	0.55	0.79	1.06	0.86	1.98	1.03
0.13	0.50	0.91	0.66	0.90	1.15	1.05	1.89	1.11
0.16	0.56	1.08	0.66	1.10	1.17	1.27	2.12	1.15
0.20	0.65	1.31	0.83	1.43	1.27	1.56	2.21	1.33
0.25	0.51	1.68	0.63	1.56	1.37	1.76	2.29	1.49
0.32	0.57	1.97	1.01	2.21	1.39	2.05	2.43	1.71
0.40	0.73	2.74	0.88	2.58	1.57	2.46	2.46	1.76
0.50	0.70	3.21	1.15	3.15	1.68	2.92	2.52	2.19
0.63	0.75	4.03	0.97	3.75	1.87	3.25	2.68	2.36
0.79	0.87	4.92	1.27	4.66	2.18	4.08	2.85	2.65
1.00	1.04	5.90	1.39	5.70	2.34	4.99	3.05	3.22
1.26	1.27	7.56	1.69	7.41	2.66	5.78	3.21	3.66
1.58	1.56	9.51	2.15	9.16	2.85	7.05	3.32	4.31
2.00	2.07	11.80	2.42	11.20	3.22	8.61	3.65	4.94
2.51	2.49	14.40	2.91	13.60	3.65	9.98	3.67	6.01
3.16	3.19	17.80	3.70	16.60	4.15	12.00	4.16	6.93
3.98	4.17	21.90	4.69	20.30	4.73	14.60	4.45	8.33
5.01	5.51	26.90	5.89	24.80	5.57	17.60	4.89	10.10
6.31	7.29	32.70	7.58	30.20	6.51	21.30	5.48	12.00
7.94	9.38	39.80	9.65	36.50	7.73	25.60	6.01	14.50
10.00	12.20	48.30	12.20	44.10	9.30	31.00	6.58	17.30
12.60	15.80	58.30	15.60	53.00	11.30	37.50	7.53	20.80
15.80	20.40	70.30	19.80	63.70	13.80	45.20	8.62	25.20
20.00	26.20	84.30	24.90	76.30	16.80	54.40	10.20	30.40
25.10	33.60	101.00	31.60	91.00	21.10	65.20	12.00	36.40
31.60	42.50	120.00	39.50	108.00	25.70	78.10	14.30	43.60
39.80	53.30	142.00	49.30	128.00	31.90	93.40	17.10	52.20
50.10	66.50	168.00	61.50	152.00	39.50	111.00	20.80	62.80
63.10	83.00	199.00	76.20	179.00	49.10	132.00	25.30	75.40
79.40	104.00	234.00	94.80	211.00	61.30	158.00	31.50	90.40
100.00	131.00	275.00	119.00	248.00	77.70	187.00	40.00	108.00

**Table G-3.1 (Cont.) : 3.0%wt HPC, Strain = 15%**

Frequency (rad/s)	T = 46°C		T = 47°C		T = 48°C		T = 49°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	2.99	1.11	4.80	1.53	6.31	1.71	4.57	1.46
0.13	2.97	1.08	4.49	1.46	6.10	1.54	4.58	1.45
0.16	3.10	1.18	4.63	1.40	6.05	1.52	4.73	1.46
0.20	3.19	1.25	4.57	1.53	6.08	1.49	4.91	1.55
0.25	3.21	1.37	4.72	1.38	6.25	1.52	5.07	1.60
0.32	3.36	1.36	4.79	1.50	6.24	1.51	5.10	1.61
0.40	3.34	1.51	4.92	1.60	6.36	1.56	5.24	1.66
0.50	3.49	1.67	4.91	1.70	6.46	1.68	5.46	1.85
0.63	3.89	1.84	5.06	1.80	6.58	1.75	5.51	1.81
0.79	3.84	2.04	5.27	1.95	6.71	1.89	5.71	1.94
1.00	3.92	2.40	5.42	2.09	7.01	1.89	5.81	2.02
1.26	4.23	2.66	5.39	2.25	7.26	2.01	5.95	2.06
1.58	4.31	2.92	5.59	2.30	7.22	1.90	6.19	2.19
2.00	4.41	3.19	5.76	2.67	7.44	2.22	6.26	2.42
2.51	4.73	3.80	5.96	2.80	7.58	2.60	6.51	2.61
3.16	4.84	4.23	6.10	3.03	7.88	2.75	6.61	2.76
3.98	5.11	4.89	6.31	3.44	7.92	2.82	7.01	3.08
5.01	5.36	5.66	6.62	3.97	8.23	3.17	6.98	3.31
6.31	5.53	6.55	6.71	4.48	8.48	3.51	7.29	3.66
7.94	6.09	7.79	6.95	5.04	8.70	3.97	7.51	4.02
10.00	6.43	9.09	7.22	5.68	8.85	4.56	7.85	4.51
12.60	6.85	10.60	7.61	6.51	9.13	5.08	8.21	5.08
15.80	7.42	12.60	7.98	7.53	9.41	5.60	8.38	5.68
20.00	8.09	15.10	8.47	8.76	9.91	6.76	8.80	6.43
25.10	9.16	17.60	8.85	10.10	10.40	7.66	9.20	7.67
31.60	9.96	20.90	9.73	12.00	10.80	8.70	9.87	8.73
39.80	11.20	25.00	10.40	14.10	11.40	10.30	10.40	10.00
50.10	12.80	29.80	11.30	16.50	12.30	12.00	11.20	11.50
63.10	14.80	35.80	12.50	19.50	13.30	13.90	12.30	13.60
79.40	17.40	42.90	14.10	23.20	14.60	16.40	13.60	15.90
100.00	21.40	51.30	16.50	27.60	16.70	19.00	15.70	18.60

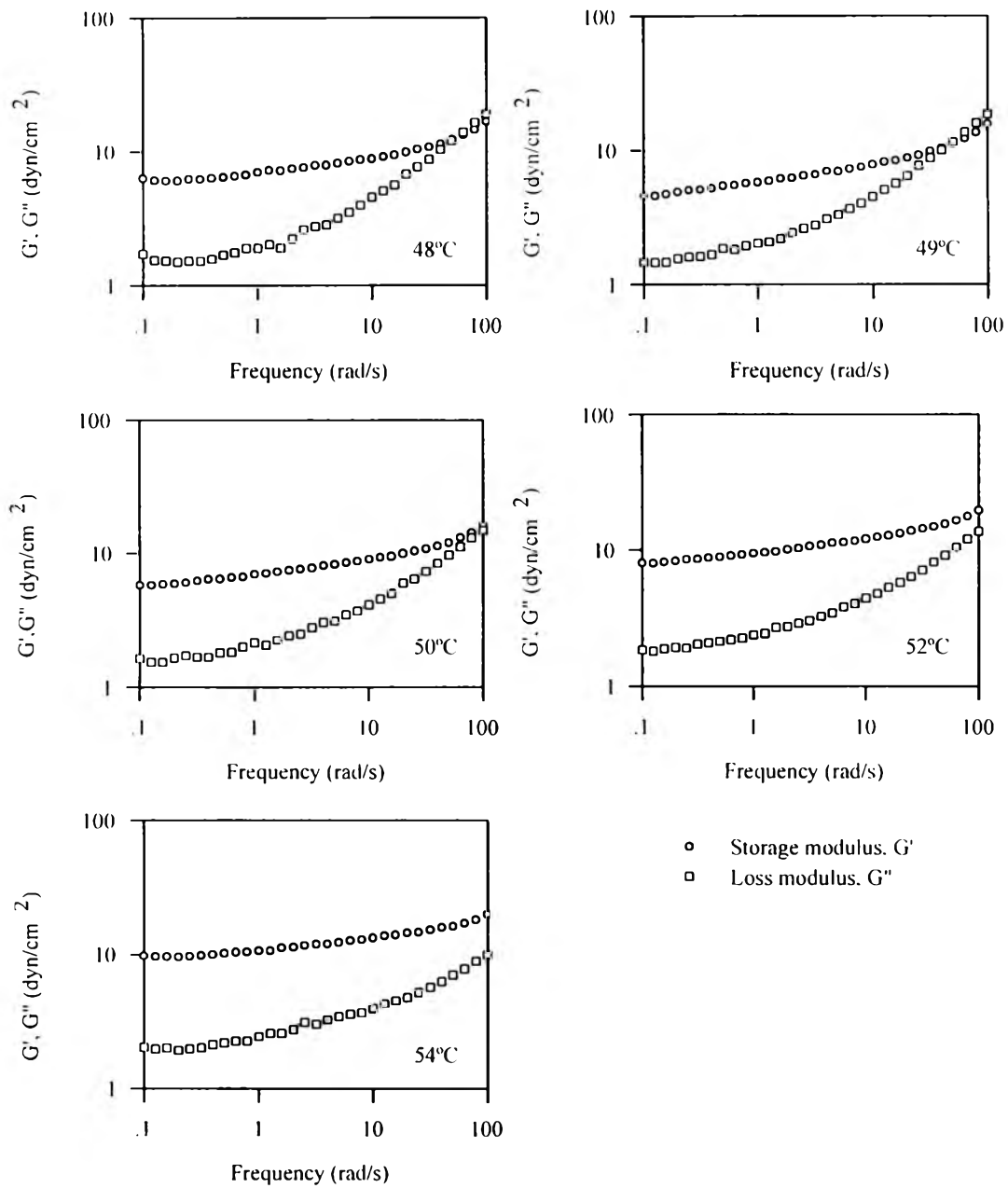
**Table G-3.1 (Cont.) : 3.0%wt HPC, Strain = 15%**

Frequency (rad/s)	T = 50°C		T = 52°C		T = 54°C	
	G'	G''	G'	G''	G'	G''
0.10	5.78	1.64	8.02	1.84	9.76	2.01
0.13	5.78	1.54	7.98	1.80	9.64	1.95
0.16	5.86	1.54	8.15	1.88	9.63	1.99
0.20	5.91	1.65	8.29	1.92	9.58	1.92
0.25	6.01	1.72	8.51	1.90	9.72	1.96
0.32	6.23	1.67	8.56	2.02	9.81	1.99
0.40	6.40	1.67	8.76	2.07	10.00	2.11
0.50	6.42	1.81	8.89	2.12	10.20	2.17
0.63	6.58	1.82	9.05	2.18	10.40	2.24
0.79	6.68	1.99	9.24	2.24	10.50	2.24
1.00	6.95	2.14	9.45	2.36	10.70	2.42
1.26	7.08	2.06	9.61	2.42	10.70	2.55
1.58	7.25	2.24	9.75	2.67	11.20	2.56
2.00	7.45	2.41	10.10	2.72	11.40	2.74
2.51	7.61	2.47	10.30	2.87	11.70	3.10
3.16	7.74	2.77	10.70	3.00	11.90	3.00
3.98	8.08	3.02	10.90	3.23	12.00	3.24
5.01	8.21	3.10	11.30	3.41	12.30	3.43
6.31	8.47	3.44	11.40	3.78	12.70	3.57
7.94	8.70	3.68	11.70	3.99	12.90	3.65
10.00	9.01	4.10	12.10	4.37	13.30	3.94
12.60	9.30	4.52	12.50	4.74	13.80	4.26
15.80	9.46	4.95	12.80	5.25	14.00	4.49
20.00	10.00	5.96	13.30	5.72	14.50	4.74
25.10	10.40	6.37	13.90	6.31	14.70	5.19
31.60	10.80	7.27	14.40	7.05	15.30	5.67
39.80	11.30	8.37	14.90	8.11	15.90	6.26
50.10	12.00	9.66	15.60	9.08	16.30	7.02
63.10	13.10	11.10	16.60	10.40	17.10	7.80
79.40	14.30	13.00	17.80	12.00	18.20	8.89
100.00	16.20	14.70	19.70	13.70	19.90	9.92



- Storage modulus,  $G'$
- Loss modulus,  $G''$





**FigureG-3.1:** Plots of  $G'$  and  $G''$  vs frequency for 3.0%wt HPC at various temperatures.

**Table G-3.2** : 4.0%wt HPC, Strain = 10%

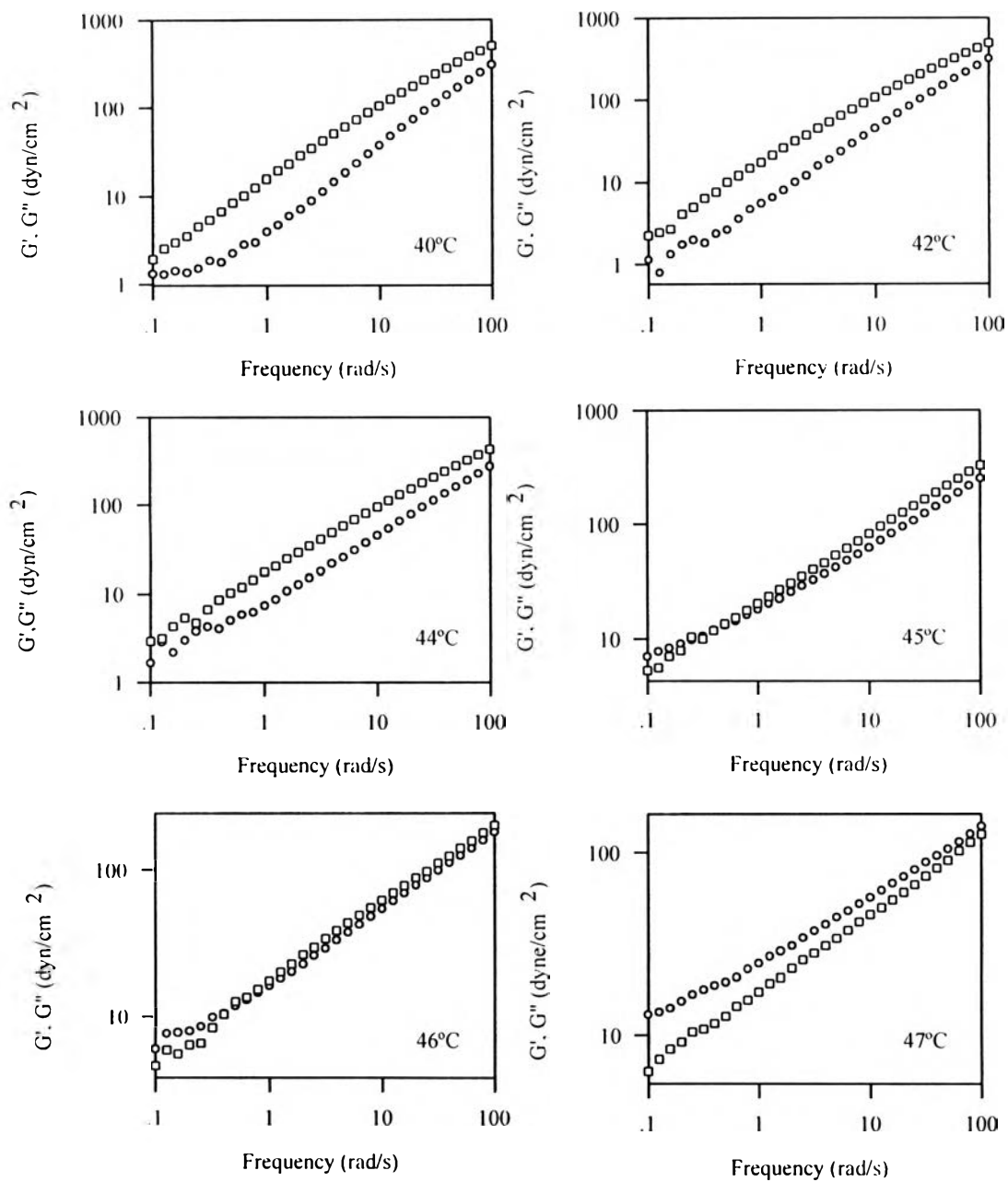
Frequency (rad/s)	T = 40°C		T = 42°C		T = 44°C		T = 45°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	1.31	1.92	1.14	2.24	1.66	2.92	7.06	5.29
0.13	1.30	2.54	0.79	2.44	2.90	3.12	7.77	5.58
0.16	1.42	2.98	1.34	2.69	2.19	4.30	8.34	7.01
0.20	1.35	3.53	1.75	4.07	3.01	5.36	9.13	7.87
0.25	1.51	4.51	2.00	4.95	3.81	4.69	9.90	10.40
0.32	1.85	5.39	1.84	6.36	4.29	6.66	10.60	9.98
0.40	1.78	6.70	2.38	7.55	4.07	8.50	12.10	11.80
0.50	2.25	8.38	2.66	9.99	5.06	10.20	13.20	13.50
0.63	2.85	10.10	3.59	11.90	5.88	11.80	14.40	15.30
0.79	3.00	12.50	4.71	14.50	6.23	14.30	16.30	17.70
1.00	3.97	15.50	5.54	17.10	7.38	17.50	18.20	20.30
1.26	4.73	19.20	6.54	21.00	8.60	20.30	20.40	23.30
1.58	5.96	22.80	8.04	25.70	10.80	24.70	22.50	26.80
2.00	7.17	28.40	10.10	31.30	12.70	28.90	25.70	30.50
2.51	8.90	34.40	12.00	36.70	15.10	34.40	29.00	35.00
3.16	11.30	41.90	15.60	44.80	17.90	41.00	32.80	40.30
3.98	14.60	50.30	18.70	53.50	21.80	48.60	37.10	45.90
5.01	18.30	60.70	23.40	64.10	25.60	57.60	42.20	53.50
6.31	23.30	73.30	29.30	76.30	30.80	67.90	48.20	61.60
7.94	29.90	87.70	36.20	90.50	37.40	79.90	55.10	71.20
10.00	37.40	105.00	44.90	107.00	45.10	94.30	62.80	82.50
12.60	47.50	125.00	55.20	127.00	54.10	111.00	72.20	95.40
15.80	59.60	148.00	68.10	149.00	65.20	130.00	83.20	110.00
20.00	74.20	175.00	83.60	175.00	78.10	151.00	95.70	126.00
25.10	92.30	205.00	102.00	204.00	94.10	177.00	108.00	144.00
31.60	113.00	240.00	123.00	238.00	112.00	206.00	124.00	165.00
39.80	139.00	280.00	150.00	276.00	134.00	238.00	143.00	189.00
50.10	169.00	326.00	181.00	319.00	160.00	276.00	164.00	218.00
63.10	206.00	379.00	217.00	369.00	190.00	319.00	189.00	250.00
79.40	250.00	439.00	261.00	426.00	227.00	370.00	217.00	288.00
100.00	306.00	504.00	316.00	488.00	273.00	425.00	252.00	327.00

**Table G-3.2 (Cont.) : 4.0%wt HPC, Strain = 10%**

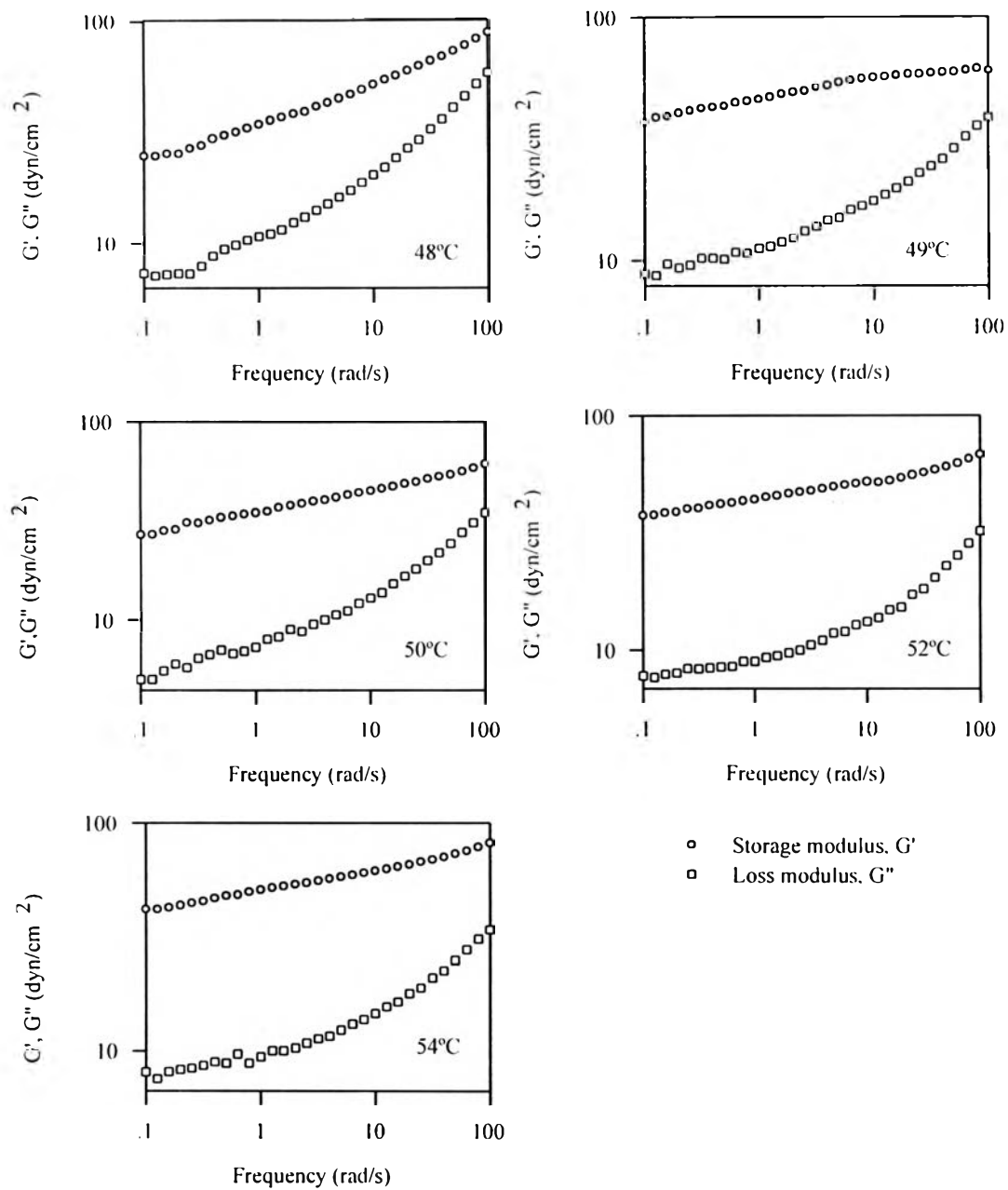
Frequency (rad/s)	T = 46°C		T = 47°C		T = 48°C		T = 49°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	6.04	4.61	13.00	6.32	25.10	7.35	37.30	8.77
0.13	7.68	5.90	13.40	7.36	25.10	7.17	39.10	8.65
0.16	7.79	5.54	14.10	8.38	25.70	7.27	39.60	9.66
0.20	7.97	6.39	15.40	9.15	25.70	7.34	40.80	9.31
0.25	8.53	6.56	16.80	10.40	27.20	7.30	41.70	9.55
0.32	9.88	8.36	17.80	10.80	28.00	7.91	42.60	10.20
0.40	10.50	10.30	18.80	11.60	30.10	8.81	43.10	10.20
0.50	11.80	12.60	19.60	12.70	31.20	9.44	43.50	10.10
0.63	13.00	13.50	20.80	14.40	32.20	9.87	44.90	10.80
0.79	14.60	15.30	23.10	15.60	33.60	10.40	45.50	10.70
1.00	16.20	17.50	24.80	17.30	34.90	10.80	46.30	11.20
1.26	18.20	20.10	27.10	19.20	36.40	11.10	47.30	11.40
1.58	20.30	22.80	29.00	20.70	37.60	11.60	48.60	11.90
2.00	22.80	26.40	31.00	23.20	38.90	12.50	49.50	12.40
2.51	26.20	29.60	34.30	25.90	39.80	13.20	50.00	13.20
3.16	29.20	34.10	37.40	28.20	42.00	14.20	51.90	13.80
3.98	33.40	38.60	40.50	31.00	43.70	15.20	52.60	14.70
5.01	37.60	43.50	44.50	33.90	45.60	16.30	54.10	15.00
6.31	42.60	49.10	48.10	37.60	47.50	17.50	55.30	16.20
7.94	48.40	55.20	52.70	41.70	49.80	19.00	56.10	16.80
10.00	54.50	62.10	57.00	45.70	52.50	20.60	56.70	17.60
12.60	61.60	69.50	62.50	50.10	55.10	22.30	57.10	18.70
15.80	69.60	77.90	68.10	55.20	57.50	24.60	57.90	19.90
20.00	78.90	88.20	74.30	60.60	60.50	27.20	58.40	21.20
25.10	88.10	97.50	80.90	66.80	63.40	29.60	58.50	23.00
31.60	99.70	111.00	88.90	74.40	66.80	33.10	59.00	24.50
39.80	112.00	124.00	96.70	82.20	70.00	36.70	59.50	26.30
50.10	125.00	140.00	105.00	90.80	74.00	41.30	59.70	29.10
63.10	140.00	157.00	115.00	102.00	78.40	46.40	60.70	32.50
79.40	159.00	179.00	127.00	114.00	83.60	52.60	61.70	36.00
100.00	181.00	201.00	140.00	126.00	89.50	58.90	60.50	38.90

**Table G-3.2 (Cont.) : 4.0%wt HPC, Strain = 10%**

Frequency (rad/s)	T = 50°C		T = 52°C		T = 54°C	
	G'	G''	G'	G''	G'	G''
0.10	27.10	5.10	37.60	7.78	41.70	8.08
0.13	27.20	5.10	37.80	7.68	41.70	7.55
0.16	28.40	5.63	38.60	7.92	42.40	8.11
0.20	28.80	6.09	38.90	8.01	43.40	8.28
0.25	31.20	5.83	40.10	8.36	44.40	8.40
0.32	31.10	6.49	40.40	8.34	45.20	8.64
0.40	32.10	6.77	41.50	8.41	46.70	8.95
0.50	33.10	7.14	42.10	8.49	47.80	8.83
0.63	33.70	6.84	42.60	8.51	48.30	9.68
0.79	34.40	7.05	43.40	8.94	49.80	8.83
1.00	35.00	7.37	44.00	8.95	50.80	9.43
1.26	35.60	8.09	45.10	9.31	51.90	10.00
1.58	37.20	8.30	45.70	9.47	52.60	10.00
2.00	38.10	9.04	46.60	9.73	53.70	10.30
2.51	38.90	8.81	47.40	10.00	54.60	10.80
3.16	40.00	9.57	48.00	10.50	55.60	11.30
3.98	40.50	10.10	49.00	11.00	56.90	11.60
5.01	41.80	10.70	50.00	11.80	57.90	12.30
6.31	43.10	11.20	50.80	12.00	59.00	13.10
7.94	44.20	12.20	51.60	12.80	60.30	13.70
10.00	45.00	13.00	52.50	13.20	61.50	14.60
12.60	46.40	13.80	52.20	13.70	62.80	15.60
15.80	47.50	15.30	53.00	14.80	64.30	16.40
20.00	49.00	16.70	54.50	15.20	65.60	17.80
25.10	50.00	18.10	56.10	17.20	67.50	18.90
31.60	52.00	20.00	57.40	18.20	69.10	20.90
39.80	53.20	21.90	59.00	20.30	70.90	22.50
50.10	54.40	24.40	60.80	22.80	73.30	24.90
63.10	56.40	27.70	62.90	25.30	75.40	27.70
79.40	58.80	31.00	65.70	28.50	78.40	30.80
100.00	61.50	34.80	68.50	32.20	81.70	33.80



- Storage modulus,  $G'$
- Loss modulus,  $G''$



**FigureG-3.2:** Plots of  $G'$  and  $G''$  vs frequency for 4.0%wt HPC at various temperatures.

**Table G-3.3** : 5.0%wt HPC, Strain = 0.3%

Frequency (rad/s)	T = 40°C		T = 42°C		T = 44°C		T = 45°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	173.00	154.00	154.00	134.00	19.60	20.30	21.40	14.70
0.13	180.00	161.00	161.00	135.00	24.80	20.90	21.40	17.70
0.16	182.00	163.00	163.00	149.00	28.30	22.60	23.80	17.80
0.20	185.00	165.00	177.00	152.00	28.40	25.30	24.90	18.20
0.25	194.00	170.00	180.00	164.00	29.10	33.20	25.20	20.40
0.32	210.00	194.00	197.00	178.00	36.80	35.80	25.60	26.00
0.40	216.00	196.00	211.00	183.00	39.90	44.30	26.50	26.90
0.50	236.00	211.00	222.00	199.00	40.90	44.40	28.10	30.00
0.63	255.00	236.00	230.00	220.00	46.20	53.90	37.70	33.20
0.79	269.00	247.00	236.00	224.00	50.50	64.60	38.10	41.00
1.00	300.00	279.00	238.00	225.00	55.30	68.60	46.40	58.30
1.26	328.00	306.00	277.00	270.00	57.90	81.30	53.20	61.00
1.58	347.00	330.00	304.00	289.00	63.50	99.30	59.80	62.80
2.00	365.00	372.00	314.00	317.00	68.10	117.00	60.10	76.50
2.51	414.00	399.00	345.00	365.00	78.10	130.00	60.20	82.00
3.16	466.00	445.00	376.00	394.00	97.40	147.00	69.80	107.00
3.98	488.00	480.00	396.00	420.00	114.00	194.00	79.10	126.00
5.01	517.00	526.00	435.00	485.00	122.00	202.00	81.80	137.00
6.31	600.00	600.00	478.00	527.00	145.00	241.00	106.00	156.00
7.94	653.00	671.00	527.00	573.00	161.00	282.00	121.00	189.00
10.00	715.00	758.00	573.00	656.00	195.00	321.00	136.00	210.00
12.60	787.00	827.00	628.00	723.00	223.00	368.00	145.00	250.00
15.80	864.00	922.00	703.00	820.00	261.00	418.00	177.00	288.00
20.00	978.00	1020.00	793.00	905.00	317.00	481.00	216.00	318.00
25.10	1060.00	1160.00	884.00	1010.00	362.00	561.00	239.00	373.00
31.60	1190.00	1270.00	962.00	1130.00	410.00	634.00	268.00	426.00
39.80	1310.00	1450.00	1080.00	1260.00	481.00	736.00	309.00	483.00
50.10	1470.00	1640.00	1200.00	1410.00	554.00	827.00	364.00	540.00
63.10	1660.00	1850.00	1360.00	1590.00	657.00	937.00	412.00	638.00
79.40	1900.00	2110.00	1530.00	1790.00	753.00	1080.00	487.00	722.00
100.00	2210.00	2370.00	1790.00	2020.00	875.00	1210.00	568.00	817.00

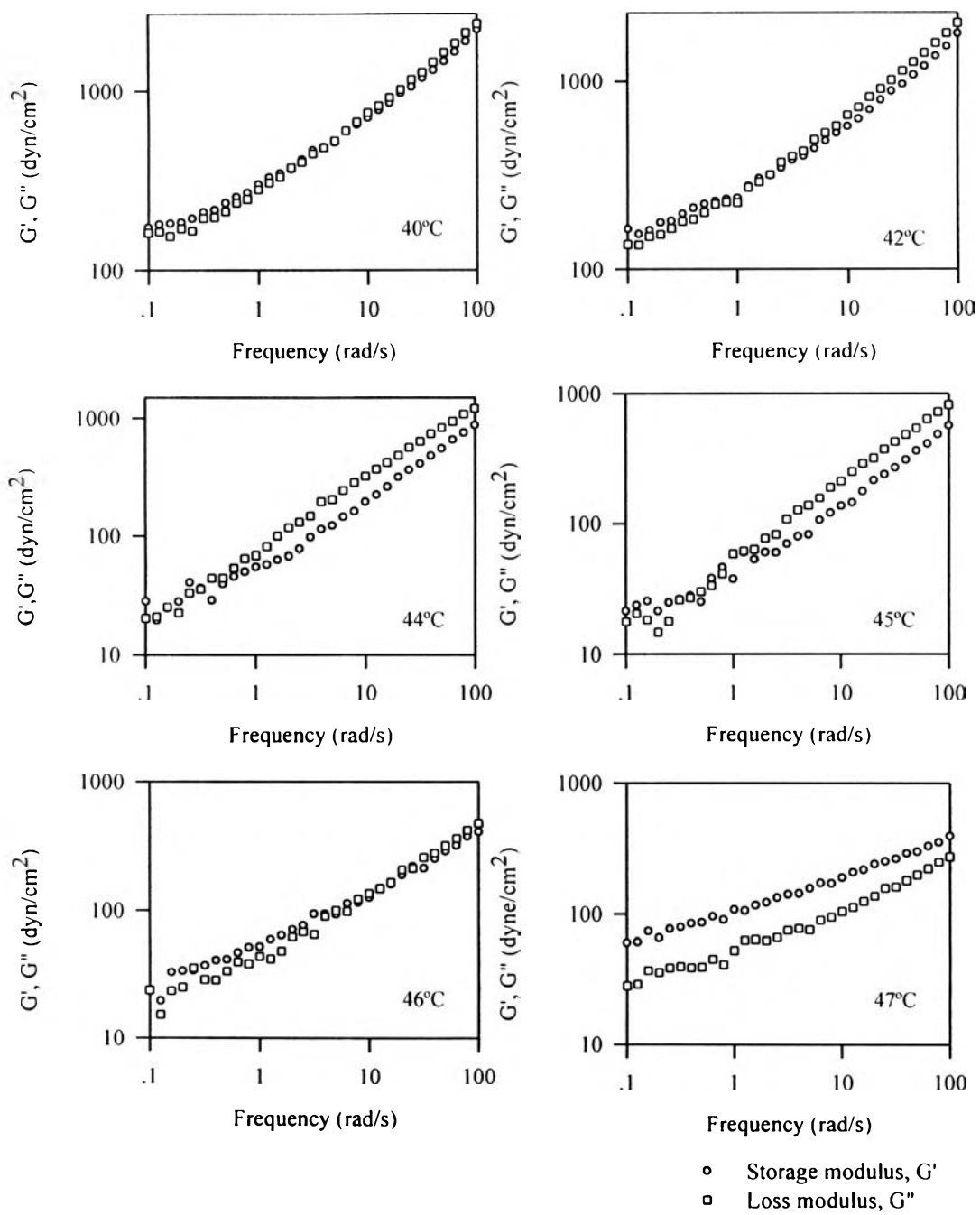
**Table G-3.3 (Cont.)** : 5.0%wt HPC, Strain = 0.3%

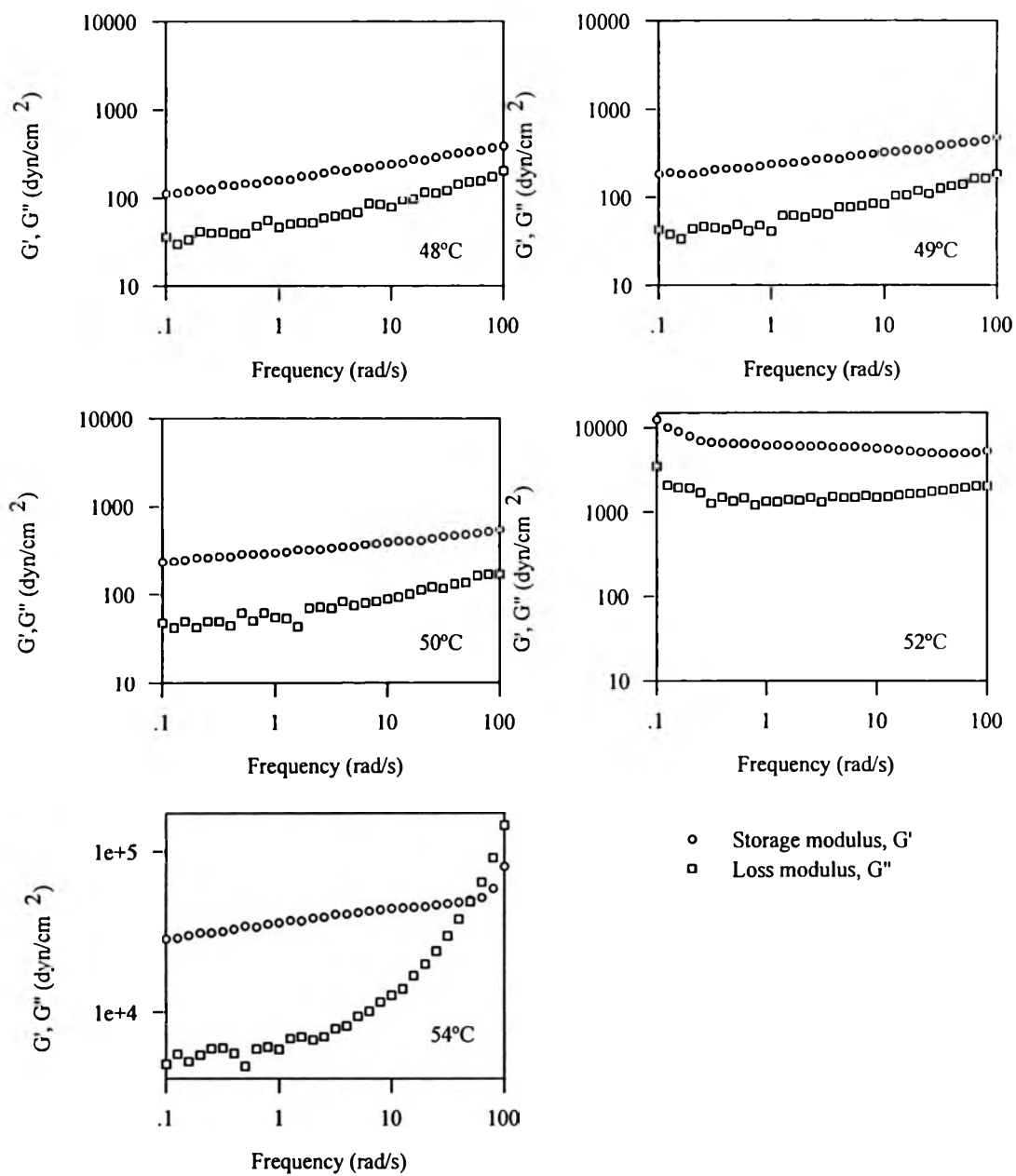
Frequency (rad/s)	T = 46°C		T = 47°C		T = 48°C		T = 49°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	403.00	468.00	390.00	270.00	112.00	29.70	183.00	33.50
0.13	372.00	411.00	351.00	246.00	114.00	33.40	183.00	37.80
0.16	316.00	356.00	327.00	219.00	120.00	35.90	184.00	40.90
0.20	285.00	312.00	297.00	197.00	126.00	39.00	191.00	41.40
0.25	250.00	274.00	289.00	178.00	126.00	39.40	193.00	42.80
0.32	211.00	254.00	262.00	159.00	140.00	39.80	207.00	42.90
0.40	217.00	209.00	251.00	156.00	141.00	40.30	211.00	43.70
0.50	187.00	203.00	239.00	136.00	146.00	41.30	214.00	44.90
0.63	159.00	162.00	216.00	124.00	146.00	46.20	216.00	46.20
0.79	148.00	146.00	207.00	112.00	158.00	48.10	226.00	47.80
1.00	126.00	134.00	188.00	104.00	160.00	50.40	239.00	48.80
1.26	115.00	121.00	171.00	94.50	162.00	52.10	244.00	59.70
1.58	113.00	97.70	172.00	89.70	177.00	52.20	248.00	61.80
2.00	93.50	99.50	156.00	75.60	180.00	55.70	257.00	61.90
2.51	94.00	89.50	143.00	77.30	193.00	59.10	270.00	63.40
3.16	94.00	64.70	141.00	75.10	202.00	62.10	271.00	65.50
3.98	76.60	67.70	133.00	66.30	208.00	65.10	278.00	76.70
5.01	71.00	61.70	123.00	62.70	217.00	68.70	294.00	77.60
6.31	63.70	47.60	116.00	63.60	222.00	79.20	304.00	79.60
7.94	59.30	41.40	106.00	62.90	235.00	84.20	312.00	83.50
10.00	51.80	43.30	108.00	52.50	243.00	86.30	325.00	84.90
12.60	51.10	37.80	91.00	41.10	248.00	95.50	330.00	104.00
15.80	46.40	39.20	96.00	45.10	269.00	97.40	345.00	106.00
20.00	41.10	33.20	86.30	39.20	275.00	113.00	345.00	109.00
25.10	40.60	28.20	85.00	38.90	290.00	116.00	352.00	118.00
31.60	36.80	28.50	79.70	39.60	312.00	121.00	390.00	126.00
39.80	33.80	35.10	77.20	38.60	321.00	143.00	398.00	134.00
50.10	33.50	24.80	66.00	35.70	333.00	152.00	417.00	140.00
63.10	32.70	23.20	74.30	36.80	345.00	156.00	422.00	163.00
79.40	19.60	15.20	61.40	28.80	374.00	174.00	450.00	164.00
100.00	23.20	23.50	60.40	28.00	388.00	203.00	478.00	184.00



**Table G-3.3 (Cont.)** : 5.0%wt HPC, Strain = 0.3%

Frequency (rad/s)	T = 50°C		T = 52°C		T = 54°C	
	G'	G''	G'	G''	G'	G''
0.10	232.00	41.80	4980.00	1210.00	28400.00	4580.00
0.13	236.00	42.20	4980.00	1270.00	28800.00	4720.00
0.16	244.00	42.80	5020.00	1320.00	29900.00	4900.00
0.20	259.00	44.20	5030.00	1320.00	31000.00	5390.00
0.25	260.00	47.20	5060.00	1340.00	31000.00	5470.00
0.32	268.00	49.30	5150.00	1350.00	31600.00	5520.00
0.40	269.00	49.50	5280.00	1380.00	32700.00	5850.00
0.50	286.00	49.50	5310.00	1410.00	33700.00	5890.00
0.63	287.00	50.00	5420.00	1480.00	34200.00	5900.00
0.79	288.00	53.10	5620.00	1480.00	35100.00	5960.00
1.00	297.00	54.60	5700.00	1490.00	35800.00	6040.00
1.26	302.00	61.40	5810.00	1490.00	36800.00	6710.00
1.58	321.00	61.40	5910.00	1500.00	37000.00	6840.00
2.00	322.00	69.20	5910.00	1500.00	38200.00	7000.00
2.51	324.00	69.80	5950.00	1520.00	38900.00	7020.00
3.16	336.00	71.60	6050.00	1530.00	40400.00	7870.00
3.98	347.00	74.80	6100.00	1570.00	40600.00	8170.00
5.01	351.00	79.90	6120.00	1590.00	41400.00	9410.00
6.31	371.00	82.50	6130.00	1650.00	42200.00	10100.00
7.94	378.00	83.00	6150.00	1660.00	43100.00	11500.00
10.00	391.00	88.70	6250.00	1700.00	43900.00	12700.00
12.60	403.00	92.40	6440.00	1760.00	44200.00	13900.00
15.80	407.00	101.00	6470.00	1800.00	44700.00	16800.00
20.00	408.00	112.00	6480.00	1890.00	45100.00	19800.00
25.10	431.00	117.00	6620.00	1940.00	46100.00	23800.00
31.60	457.00	121.00	6770.00	1950.00	46900.00	29600.00
39.80	467.00	131.00	7030.00	1960.00	47900.00	37600.00
50.10	478.00	136.00	7990.00	2040.00	49500.00	48100.00
63.10	496.00	162.00	9080.00	2050.00	51200.00	63500.00
79.40	519.00	168.00	10100.00	2080.00	58100.00	90200.00
100.00	544.00	168.00	12500.00	3490.00	79600.00	143000.00





**FigureG-3.3:** Plots of  $G'$  and  $G''$  vs frequency for 5.0%wt HPC at various temperatures.

G-4) Data of viscoelastic loss tangent for complex systems as a function of temperature.

**Table G-4.1 :** Complex of 3.0%wt HPC/HTAB (Figure 3.22 (a))

Temperature (°C)	Tan $\delta$			
	$\omega=0.2$ rad/s	$\omega=0.5$ rad/s	$\omega=1.0$ rad/s	$\omega=2.0$ rad/s
40	12.30	17.30	28.20	138.00
42	7.71	12.10	14.80	19.00
44	4.69	5.79	7.54	10.60
46	2.70	3.12	3.56	5.06
48	1.83	2.03	2.25	2.56
49	1.55	1.72	1.92	2.25
50	1.90	2.12	2.34	2.58
51	2.30	2.61	2.98	3.61
52	2.52	2.95	3.46	3.92
53	2.84	3.40	3.86	4.33
54	3.24	4.18	4.80	6.25
56	3.91	4.95	6.37	8.09

**Table G-4.2 :** Complex of 4.0%wt HPC/HTAB (Figure 3.20 (a))

Temperature (°C)	Tan $\delta$			
	$\omega=0.2$ rad/s	$\omega=0.5$ rad/s	$\omega=1.0$ rad/s	$\omega=2.0$ rad/s
40	2.39	2.90	3.22	5.11
42	2.24	2.59	2.99	3.39
44	2.03	2.33	2.70	3.25
46	1.80	2.09	2.43	2.88
48	1.40	1.56	1.72	1.99
50	0.94	0.98	1.04	1.13
52	0.88	0.96	1.03	1.11
54	0.90	0.99	1.06	1.15

**Table G-4.3:** Complex of 4.5%wt HPC/HTAB (Figure 3.20 (b))

Temperature (°C)	Tan $\delta$			
	$\omega=0.2$ rad/s	$\omega=0.5$ rad/s	$\omega=1.0$ rad/s	$\omega=2.0$ rad/s
40	3.11	3.88	5.06	7.04
42	3.36	4.24	5.61	8.40
44	3.56	4.49	5.89	9.03
46	3.45	4.32	5.54	7.79
48	1.88	2.11	2.36	2.66
49	0.94	0.98	1.04	1.04
50	0.73	0.76	0.79	0.80
51	0.79	0.84	0.86	0.87
52	0.62	0.63	0.61	0.55
54	0.47	0.44	0.43	0.41
56	0.38	0.37	0.38	0.40

**Table G-4.4** : Complex of 5.0%wt HPC/HTAB (Figure 3.20 (c))

Temperature (°C)	Tan $\delta$			
	$\omega=0.2$ rad/s	$\omega=0.5$ rad/s	$\omega=1.0$ rad/s	$\omega=2.0$ rad/s
40	2.85	3.60	4.60	6.15
42	2.07	2.30	2.40	2.77
44	1.75	1.96	2.21	2.62
46	1.91	2.14	2.38	2.78
48	1.85	2.03	2.24	2.51
50	1.79	1.92	2.15	2.51
51	1.87	2.09	2.36	2.85
52	1.09	1.19	1.30	1.41
53	1.01	1.06	1.08	1.00
54	1.15	1.28	1.42	1.54
55	1.23	1.39	1.56	1.78
56	1.15	1.24	1.31	1.34
58	1.31	1.46	1.62	1.71

**Table G-4.5** : Complex of 5.5%wt HPC/HTAB (Figure 3.22 (b))

Temperature (°C)	Tan $\delta$			
	$\omega=0.2$ rad/s	$\omega=0.5$ rad/s	$\omega=1.0$ rad/s	$\omega=2.0$ rad/s
40	2.23	2.71	3.46	5.13
42	2.10	2.46	2.98	4.00
44	1.79	1.85	1.78	1.47
46	1.44	1.67	1.93	2.52
48	1.55	1.80	2.15	2.83
49	1.62	1.89	2.27	2.86
50	1.68	1.98	2.36	2.91
51	1.71	2.01	2.39	3.07
52	1.74	2.06	2.44	3.21
53	1.77	2.10	2.51	3.27
54	1.81	2.14	2.54	3.18
55	1.81	2.14	2.53	3.12
56	1.82	2.16	2.53	3.53
57	1.84	2.20	2.58	3.23
58	1.86	2.20	2.60	3.24
60	1.81	2.13	2.59	3.25

**Table G-4.6** : Complex of 6.0%wt HPC/HTAB (Figure 3.22 (c))

Temperature (°C)	Tan $\delta$			
	$\omega=0.2$ rad/s	$\omega=0.5$ rad/s	$\omega=1.0$ rad/s	$\omega=2.0$ rad/s
40	2.02	2.43	3.01	4.31
42	1.78	2.00	2.28	2.11
44	1.08	1.18	1.30	1.46
46	1.25	1.43	1.63	1.93
48	1.28	1.48	1.68	2.04
49	1.27	1.44	1.63	1.92
50	1.26	1.41	1.60	1.72
51	1.24	1.35	1.49	1.51
52	1.19	1.30	1.40	1.46
53	1.23	1.37	1.47	1.54
54	1.24	1.39	1.49	1.59
55	1.30	1.41	1.54	1.65
56	1.26	1.38	1.50	1.50
57	1.22	1.35	1.42	1.43
58	1.22	1.33	1.44	1.51
60	1.31	1.47	1.62	1.81

G-5) Data of G' and G'' vs frequency for complex solutions at the gel point showing the power law behavior.

Frequency (rad/s)	C <sub>HPC</sub> =4.0%wt/HTAB at 50°C		C <sub>HPC</sub> =4.5%wt/HTAB at 49°C		C <sub>HPC</sub> =5.0%wt/HTAB at 53°C	
	G' (dyne/cm <sup>2</sup> )	G'' (dyne/cm <sup>2</sup> )	G' (dyne/cm <sup>2</sup> )	G'' (dyne/cm <sup>2</sup> )	G' (dyne/cm <sup>2</sup> )	G'' (dyne/cm <sup>2</sup> )
0.16	12.90	39.10	486.00	385.00	375.00	357.00
0.20	16.10	46.50	529.00	424.00	383.00	384.00
0.25	19.90	54.60	593.00	466.00	404.00	418.00
0.32	24.60	64.80	642.00	522.00	436.00	461.00
0.40	30.20	76.50	731.00	570.00	478.00	508.00
0.50	37.10	90.10	787.00	619.00	515.00	557.00
0.63	45.90	106.00	876.00	681.00	571.00	617.00
0.79	56.40	124.00	970.00	751.00	635.00	682.00
1.00	69.20	145.00	1070.00	811.00	710.00	755.00
1.26	84.90	168.00	1180.00	890.00	795.00	833.00
1.58	103.00	195.00	1300.00	967.00	892.00	919.00

G-6) Data of G' and G'' vs frequency for complex solutions at various temperatures.

**Table G-6.1** : Complex of 3.0%wt HPC/HTAB, Strain = 40.0%

Frequency (rad/s)	T = 40°C		T = 42°C		T = 44°C		T = 46°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	0.01	0.43	0.00	0.57	0.09	1.22	0.81	3.78
0.13	0.02	0.53	0.00	0.77	0.19	1.51	0.99	4.23
0.16	0.02	0.68	0.00	0.91	0.21	1.78	0.99	4.66
0.20	0.02	0.85	0.00	1.27	0.24	2.24	1.09	5.52
0.25	0.05	1.26	0.07	1.52	0.32	2.70	1.63	6.44
0.32	0.06	1.29	0.12	1.83	0.33	3.36	1.99	7.69
0.40	0.07	1.60	0.14	2.25	0.52	3.98	2.51	9.24
0.50	0.13	2.08	0.18	2.72	0.67	4.86	3.07	10.90
0.63	0.13	2.58	0.24	3.49	0.89	5.93	3.82	13.10
0.79	0.15	3.15	0.42	4.31	1.17	7.26	4.76	15.60
1.00	0.23	3.97	0.43	5.23	1.53	8.84	5.95	18.60
1.26	0.30	4.80	0.77	6.46	2.00	10.80	7.42	22.10
1.58	0.45	6.04	0.93	7.97	2.61	13.10	9.24	26.20
2.00	0.61	7.53	1.29	9.92	3.40	15.90	11.50	31.00
2.51	0.91	9.35	1.66	12.30	4.41	19.30	14.30	36.60
3.16	1.20	11.60	2.27	15.00	5.71	23.40	17.60	43.00
3.98	1.59	14.30	3.04	18.40	7.37	28.20	21.60	50.50
5.01	2.20	17.70	3.96	22.50	9.48	33.80	26.50	59.20
6.31	2.98	21.80	5.24	27.40	12.10	40.60	32.30	68.90
7.94	4.04	27.00	6.88	33.40	15.30	48.50	39.20	80.10
10.00	5.42	33.10	9.11	40.60	19.30	57.70	47.20	92.80
12.60	7.28	40.50	11.80	49.10	24.30	68.50	57.20	108.00
15.80	9.65	49.60	15.20	59.30	30.30	81.20	68.60	125.00
20.00	12.80	60.60	19.50	71.40	37.60	95.80	81.80	144.00
25.10	16.70	73.50	25.10	85.80	46.50	113.00	97.30	165.00
31.60	21.80	88.90	31.90	103.00	57.10	133.00	115.00	190.00
39.80	28.20	107.00	40.20	122.00	69.80	156.00	136.00	218.00
50.10	36.30	129.00	50.60	146.00	84.90	183.00	160.00	250.00
63.10	46.70	156.00	63.50	174.00	103.00	214.00	188.00	288.00
79.40	60.30	187.00	80.10	207.00	126.00	250.00	223.00	330.00
100.00	79.40	225.00	102.00	245.00	155.00	292.00	266.00	378.00

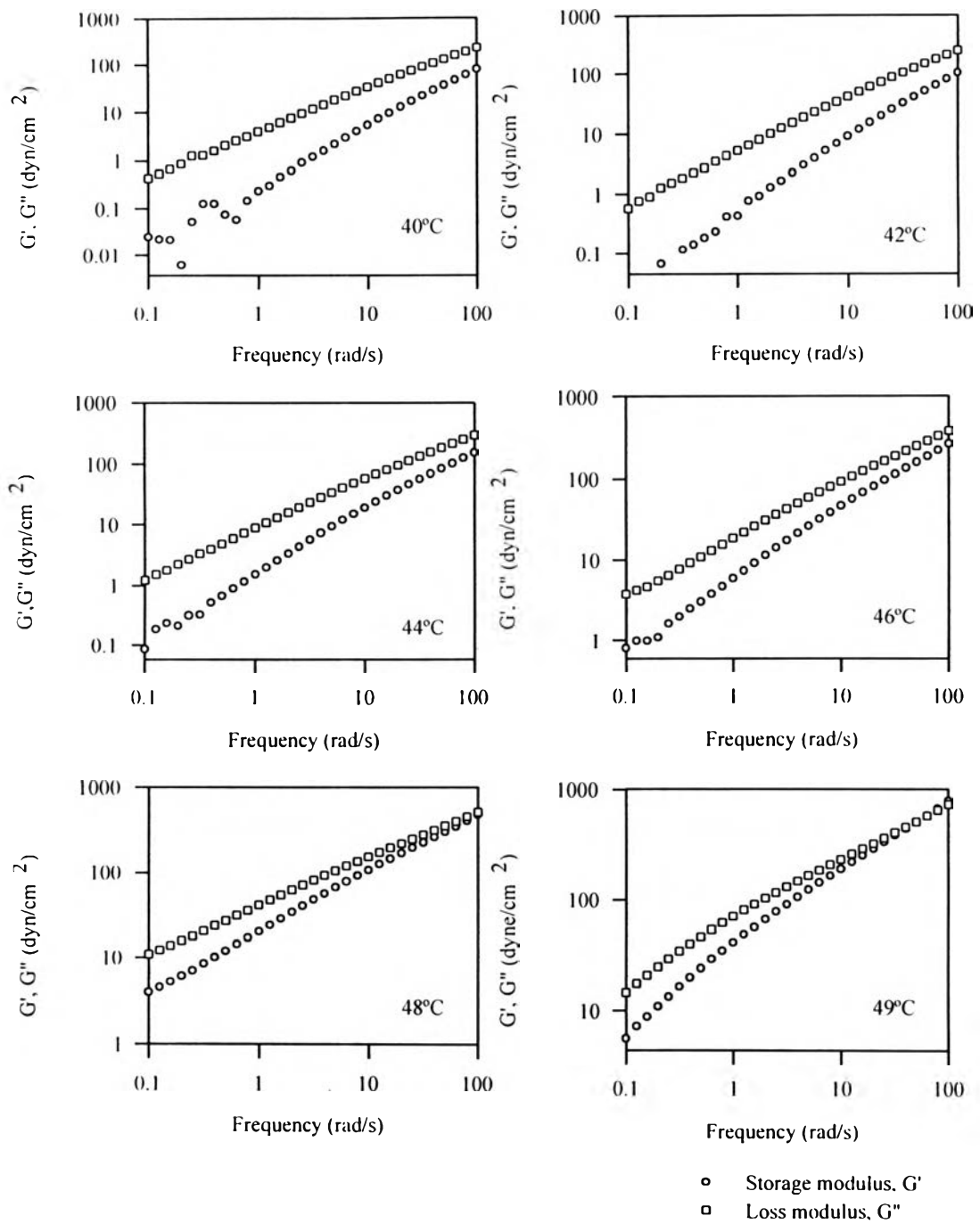
**Table G-6.1 (Cont.)** : Complex of 3.0%wt HPC/HTAB, Strain = 40.0%

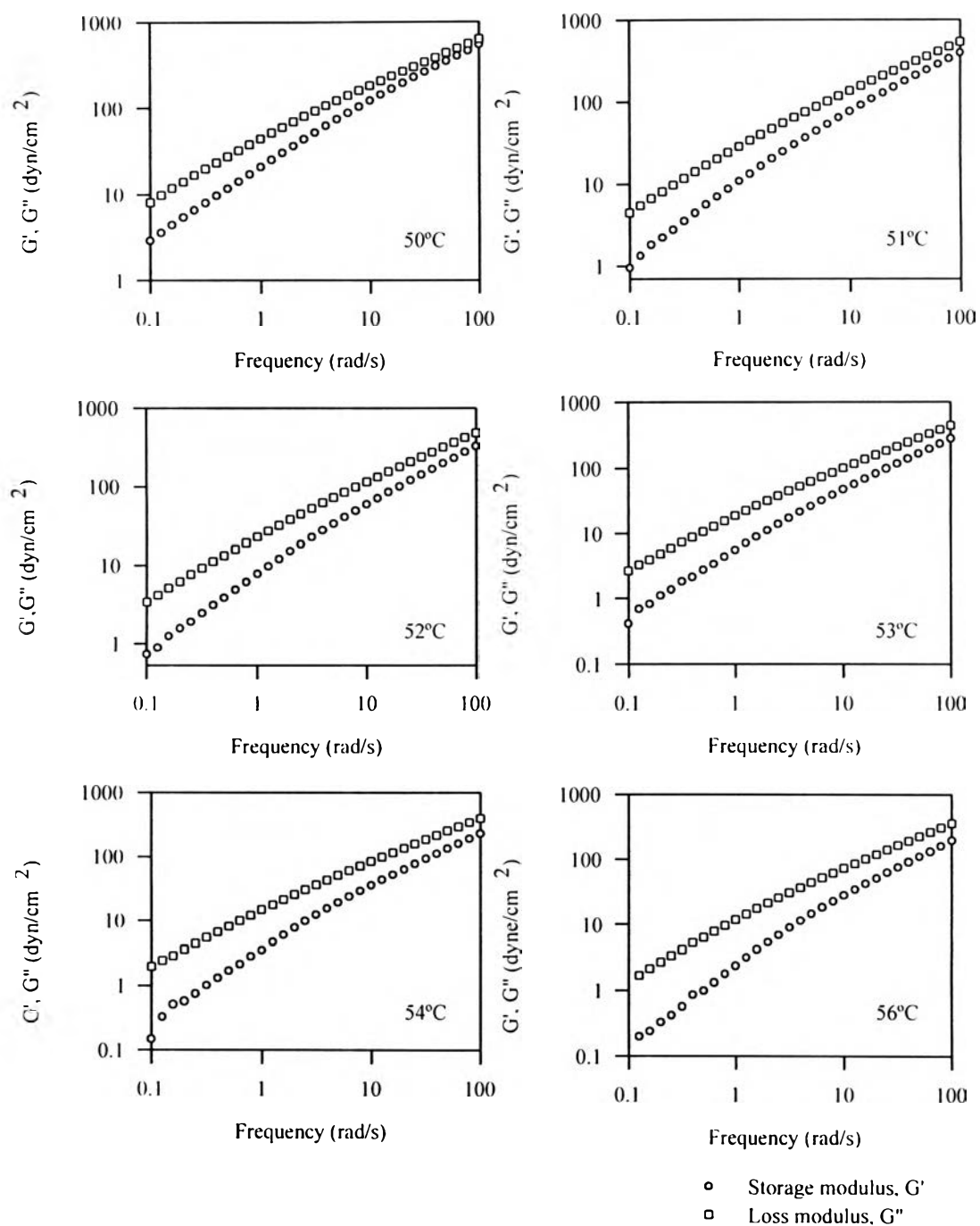
Frequency (rad/s)	T = 48°C		T = 49°C		T = 50°C		T = 51°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	3.97	10.80	5.69	14.40	2.90	7.99	0.95	4.47
0.13	4.53	12.10	7.26	17.40	3.59	9.73	1.34	5.45
0.16	5.24	13.70	8.82	20.60	4.42	11.70	1.82	6.64
0.20	6.08	15.60	10.90	24.50	5.40	13.90	2.23	8.07
0.25	7.05	17.70	13.30	28.90	6.55	16.60	2.77	9.67
0.32	8.46	20.30	15.20	34.00	7.96	19.60	3.55	11.60
0.40	9.65	23.50	16.40	39.50	9.64	23.10	4.45	14.10
0.50	10.10	26.80	19.50	46.10	11.60	27.20	5.67	16.90
0.63	11.90	30.90	19.80	53.40	14.10	31.90	7.04	20.10
0.79	12.80	35.50	24.00	59.30	17.10	37.50	8.77	24.00
1.00	14.30	41.00	25.10	61.50	20.70	43.80	10.90	28.50
1.26	16.70	47.10	28.90	70.50	25.00	51.00	13.30	33.60
1.58	16.90	49.60	31.90	71.40	30.10	59.30	16.60	39.80
2.00	20.20	54.00	34.40	80.50	36.20	68.80	20.40	46.80
2.51	21.80	60.60	40.20	85.80	43.50	79.70	24.90	54.80
3.16	24.00	62.00	41.00	90.50	52.00	91.90	30.30	64.20
3.98	28.20	71.10	48.80	103.00	62.10	106.00	36.70	74.80
5.01	28.50	73.50	50.60	103.00	73.90	122.00	44.30	87.10
6.31	33.90	81.10	56.40	116.00	87.60	139.00	53.30	101.00
7.94	36.30	88.90	63.50	122.00	103.00	159.00	63.90	117.00
10.00	40.40	92.50	66.30	131.00	122.00	181.00	76.50	135.00
12.60	46.70	105.00	78.00	146.00	143.00	206.00	91.10	156.00
15.80	47.90	107.00	80.10	148.00	167.00	234.00	108.00	180.00
20.00	56.60	120.00	91.10	166.00	195.00	265.00	128.00	207.00
25.10	60.30	129.00	102.00	174.00	227.00	300.00	151.00	237.00
31.60	66.80	135.00	106.00	186.00	263.00	340.00	178.00	272.00
39.80	78.50	153.00	124.00	207.00	304.00	383.00	209.00	312.00
50.10	79.40	156.00	144.00	209.00	350.00	434.00	244.00	356.00
63.10	92.10	173.00	166.00	234.00	403.00	491.00	285.00	408.00
79.40	108.00	187.00	192.00	245.00	466.00	556.00	334.00	467.00
100.00	126.00	225.00	222.00	261.00	545.00	628.00	395.00	534.00



**Table G-6.1 (Cont.) : Complex of 3.0%wt HPC/HTAB, Strain = 40.0%**

Frequency (rad/s)	T = 52°C		T = 53°C		T = 54°C		T = 56°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	0.73	3.36	0.41	2.65	0.15	1.95	–	–
0.13	0.89	4.11	0.69	3.27	0.33	2.41	0.20	1.67
0.16	1.24	5.06	0.82	3.92	0.51	2.85	0.24	2.12
0.20	1.57	6.15	1.11	4.79	0.57	3.58	0.33	2.67
0.25	1.89	7.61	1.37	5.88	0.75	4.41	0.42	3.33
0.32	2.43	9.15	1.83	7.37	1.01	5.47	0.57	4.13
0.40	3.09	11.10	2.14	8.78	1.31	6.67	0.85	5.20
0.50	3.83	13.20	2.76	10.70	1.69	8.11	0.99	6.27
0.63	4.87	15.90	3.40	12.90	2.13	9.90	1.32	7.81
0.79	6.11	19.20	4.40	15.60	2.81	12.10	1.78	9.56
1.00	7.75	22.90	5.53	18.80	3.51	14.70	2.37	11.70
1.26	9.73	27.10	7.20	22.50	4.69	17.50	3.15	14.30
1.58	12.00	32.10	9.03	27.00	6.06	21.20	4.17	17.50
2.00	15.10	38.10	11.30	32.10	7.83	25.40	5.38	21.10
2.51	18.50	44.80	14.10	38.00	9.89	30.30	6.95	25.50
3.16	22.80	52.90	17.50	45.10	12.40	36.20	9.03	30.60
3.98	27.80	62.10	21.70	53.20	15.50	42.70	11.40	36.60
5.01	33.80	72.60	26.60	62.60	19.20	50.80	14.60	43.70
6.31	41.00	84.80	32.50	73.50	23.80	60.20	18.30	51.90
7.94	49.50	98.90	39.60	86.10	29.10	70.90	22.80	61.50
10.00	59.50	115.00	47.90	101.00	35.70	84.00	28.10	72.70
12.60	71.20	133.00	57.80	117.00	43.50	98.40	34.60	85.70
15.80	85.30	155.00	69.60	137.00	52.40	115.00	42.30	101.00
20.00	101.00	179.00	83.40	159.00	63.50	135.00	51.70	119.00
25.10	121.00	207.00	99.80	185.00	77.10	158.00	62.90	140.00
31.60	143.00	238.00	119.00	214.00	92.70	185.00	76.10	164.00
39.80	168.00	274.00	141.00	248.00	111.00	215.00	91.80	192.00
50.10	198.00	316.00	167.00	287.00	134.00	252.00	111.00	225.00
63.10	233.00	364.00	198.00	332.00	160.00	293.00	133.00	263.00
79.40	276.00	419.00	236.00	384.00	191.00	340.00	161.00	307.00
100.00	328.00	480.00	282.00	442.00	231.00	394.00	196.00	358.00





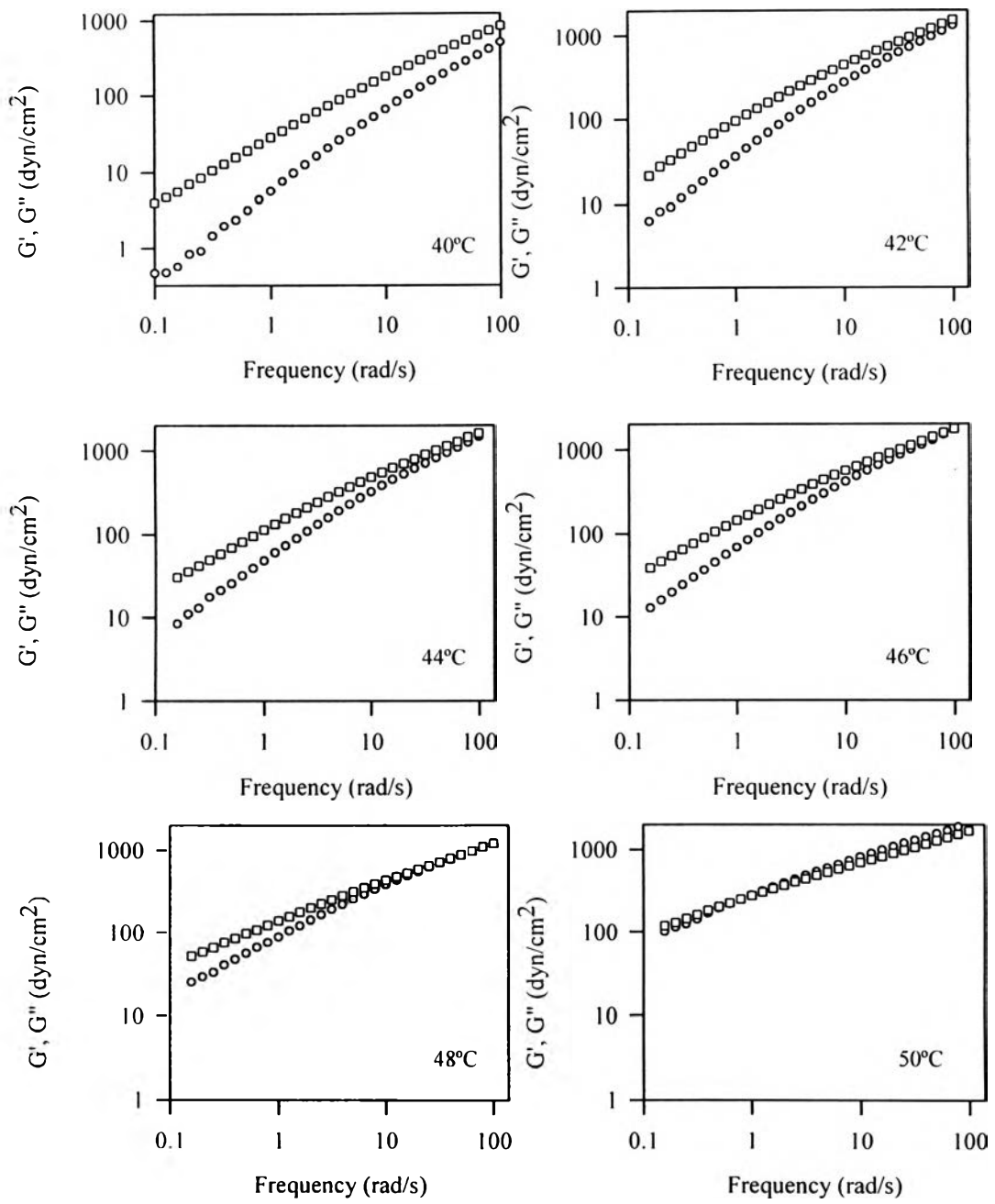
**FigureG-6.1:** Plots of  $G'$  and  $G''$  vs frequency for complex of 3.0%wt HPC/HTAB at various temperatures.

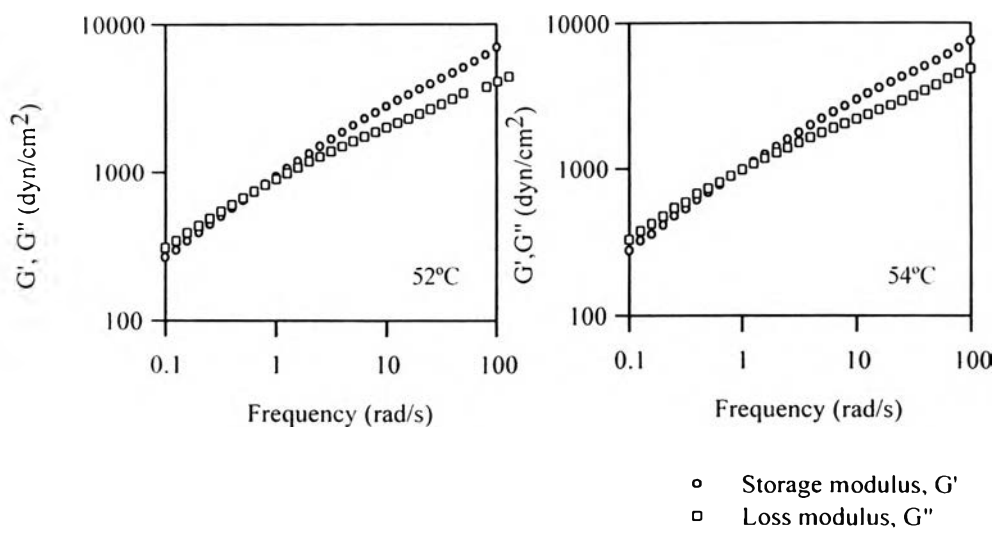
**Table G-6.2** : Complex of 4.0%wt HPC/HTAB, Strain = 5.0%

Frequency (rad/s)	T = 40°C		T = 42°C		T = 44°C		T = 46°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	0.46	3.95	—	—	—	—	—	—
0.13	0.47	4.73	—	—	—	—	—	—
0.16	0.56	5.53	1320.00	1540.00	8.52	30.40	12.90	39.10
0.20	0.83	6.98	1130.00	1370.00	11.00	35.70	16.10	46.50
0.25	0.92	8.37	969.00	1210.00	13.00	42.00	19.90	54.60
0.32	1.47	10.50	835.00	1070.00	17.60	49.50	24.60	64.80
0.40	1.96	12.70	720.00	943.00	21.30	58.50	30.20	76.50
0.50	2.37	15.50	620.00	834.00	25.70	69.40	37.10	90.10
0.63	3.17	18.90	529.00	737.00	32.00	81.80	45.90	106.00
0.79	4.39	23.20	451.00	648.00	39.60	96.70	56.40	124.00
1.00	5.64	28.20	381.00	570.00	48.80	114.00	69.20	145.00
1.26	7.57	34.00	321.00	500.00	61.00	134.00	84.90	168.00
1.58	9.74	41.40	269.00	436.00	74.00	157.00	103.00	195.00
2.00	12.60	49.90	225.00	379.00	90.20	183.00	125.00	226.00
2.51	16.20	60.30	187.00	330.00	111.00	213.00	151.00	261.00
3.16	20.50	73.00	155.00	284.00	134.00	247.00	181.00	300.00
3.98	26.20	87.40	128.00	247.00	162.00	286.00	217.00	343.00
5.01	33.20	105.00	105.00	211.00	195.00	329.00	259.00	393.00
6.31	41.80	125.00	85.20	181.00	233.00	377.00	307.00	447.00
7.94	52.50	149.00	69.20	155.00	279.00	432.00	362.00	506.00
10.00	65.90	177.00	56.10	132.00	330.00	493.00	426.00	572.00
12.60	82.90	209.00	45.30	112.00	392.00	559.00	497.00	644.00
15.80	103.00	246.00	36.40	94.40	461.00	634.00	579.00	725.00
20.00	128.00	289.00	29.30	79.80	535.00	716.00	670.00	813.00
25.10	157.00	339.00	23.60	67.20	625.00	807.00	773.00	908.00
31.60	192.00	396.00	18.80	56.40	724.00	908.00	889.00	1010.00
39.80	234.00	460.00	15.00	47.50	837.00	1020.00	1020.00	1130.00
50.10	282.00	536.00	11.90	39.50	962.00	1150.00	1160.00	1270.00
63.10	340.00	622.00	9.29	33.00	1110.00	1290.00	1320.00	1420.00
79.40	412.00	723.00	8.22	27.90	1280.00	1460.00	1520.00	1590.00
100.00	503.00	836.00	6.34	21.70	1490.00	1630.00	1760.00	1770.00

**Table G-6.2 (Cont.)** : Complex of 4.0%wt HPC/HTAB, Strain = 5.0%

Frequency (rad/s)	T = 48°C		T = 50°C		T = 52°C		T = 54°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	—	—	—	—	265.00	306.00	275.00	324.00
0.13	—	—	—	—	295.00	339.00	319.00	372.00
0.16	25.20	51.10	6.34	21.70	341.00	385.00	353.00	414.00
0.20	29.00	57.80	8.22	27.90	387.00	430.00	408.00	468.00
0.25	32.70	65.10	101.00	118.00	441.00	481.00	472.00	534.00
0.32	40.60	75.50	114.00	129.00	501.00	538.00	528.00	584.00
0.40	47.40	84.20	125.00	144.00	566.00	595.00	607.00	671.00
0.50	56.30	97.00	143.00	161.00	642.00	662.00	684.00	726.00
0.63	66.00	107.00	169.00	181.00	728.00	733.00	773.00	801.00
0.79	75.60	122.00	194.00	202.00	830.00	815.00	880.00	889.00
1.00	88.40	138.00	221.00	224.00	937.00	894.00	994.00	982.00
1.26	105.00	156.00	250.00	249.00	1060.00	981.00	1120.00	1080.00
1.58	121.00	176.00	281.00	275.00	1190.00	1070.00	1260.00	1180.00
2.00	142.00	199.00	315.00	304.00	1340.00	1180.00	1420.00	1290.00
2.51	165.00	223.00	352.00	334.00	1500.00	1270.00	1600.00	1390.00
3.16	192.00	250.00	393.00	368.00	1680.00	1380.00	1780.00	1510.00
3.98	221.00	279.00	436.00	403.00	1870.00	1490.00	2000.00	1640.00
5.01	256.00	312.00	485.00	440.00	2080.00	1620.00	2220.00	1770.00
6.31	293.00	348.00	540.00	483.00	2310.00	1740.00	2470.00	1910.00
7.94	336.00	387.00	599.00	528.00	2540.00	1870.00	2720.00	2050.00
10.00	383.00	430.00	664.00	577.00	2800.00	2010.00	3010.00	2200.00
12.60	435.00	476.00	735.00	631.00	3080.00	2150.00	3310.00	2360.00
15.80	493.00	525.00	813.00	689.00	3370.00	2300.00	3620.00	2550.00
20.00	555.00	584.00	896.00	748.00	3680.00	2480.00	3950.00	2740.00
25.10	624.00	645.00	985.00	813.00	3990.00	2670.00	4310.00	2940.00
31.60	699.00	713.00	1080.00	890.00	4340.00	2890.00	4680.00	3180.00
39.80	780.00	790.00	1190.00	968.00	4710.00	3140.00	5090.00	3460.00
50.10	871.00	877.00	1290.00	1050.00	5140.00	3440.00	5560.00	3790.00
63.10	973.00	976.00	1410.00	1150.00	5640.00	3770.00	6110.00	4170.00
79.40	1090.00	1090.00	1540.00	1260.00	6240.00	4110.00	6770.00	4530.00
100.00	1230.00	1200.00	1680.00	1380.00	7000.00	4420.00	7620.00	4880.00





**FigureG-6.2:** Plots of G' and G'' vs frequency for complex of 4.0%wt HPC/HTAB at various temperatures.

**Table G-6.3** : Complex of 4.5%wt HPC/HTAB, Strains = 0.4-20.0%

Frequency (rad/s)	T = 40°C		T = 42°C		T = 44°C		T = 46°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	0.82	8.73	0.62	7.86	0.45	7.24	0.74	7.78
0.13	0.86	10.40	0.96	9.70	0.70	9.12	1.10	9.66
0.16	1.40	13.40	1.24	12.00	1.08	11.30	1.51	12.20
0.20	2.31	16.30	1.73	14.50	1.53	13.80	1.87	14.50
0.25	3.07	20.00	2.55	18.20	1.96	17.00	2.46	17.80
0.32	4.21	24.70	3.17	22.50	2.78	21.20	3.34	21.90
0.40	5.62	30.50	4.47	27.60	4.14	26.00	4.49	26.90
0.50	7.31	37.00	6.06	34.00	5.39	31.80	5.92	32.80
0.63	9.90	45.10	8.17	41.40	7.17	38.60	7.87	40.00
0.79	13.20	54.70	11.00	50.50	9.77	47.20	10.40	48.60
1.00	17.10	66.40	14.50	61.50	12.80	57.40	13.70	59.10
1.26	22.50	80.00	18.80	74.00	16.80	69.60	17.90	71.50
1.58	28.80	96.00	24.70	89.50	21.80	83.80	23.30	86.30
2.00	36.90	115.00	32.10	108.00	28.40	101.00	30.20	104.00
2.51	47.00	137.00	41.00	129.00	36.90	122.00	38.90	125.00
3.16	59.80	163.00	52.10	154.00	47.30	146.00	49.60	149.00
3.98	75.50	194.00	66.30	183.00	60.40	173.00	63.30	178.00
5.01	94.50	229.00	83.80	217.00	76.70	206.00	80.10	211.00
6.31	118.00	269.00	106.00	257.00	96.80	244.00	101.00	249.00
7.94	146.00	316.00	133.00	303.00	122.00	288.00	126.00	293.00
10.00	180.00	369.00	165.00	355.00	152.00	338.00	157.00	344.00
12.60	221.00	428.00	204.00	414.00	189.00	395.00	195.00	402.00
15.80	269.00	496.00	250.00	480.00	232.00	458.00	240.00	467.00
20.00	326.00	572.00	304.00	555.00	284.00	531.00	293.00	540.00
25.10	392.00	657.00	368.00	639.00	345.00	613.00	355.00	622.00
31.60	468.00	753.00	442.00	733.00	417.00	705.00	428.00	715.00
39.80	556.00	860.00	527.00	839.00	499.00	808.00	512.00	818.00
50.10	658.00	982.00	625.00	959.00	595.00	926.00	609.00	935.00
63.10	775.00	1120.00	741.00	1100.00	707.00	1060.00	723.00	1070.00
79.40	917.00	1280.00	879.00	1250.00	841.00	1210.00	861.00	1220.00
100.00	1090.00	1450.00	1050.00	1420.00	1010.00	1380.00	1030.00	1380.00
Strain (%)	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0

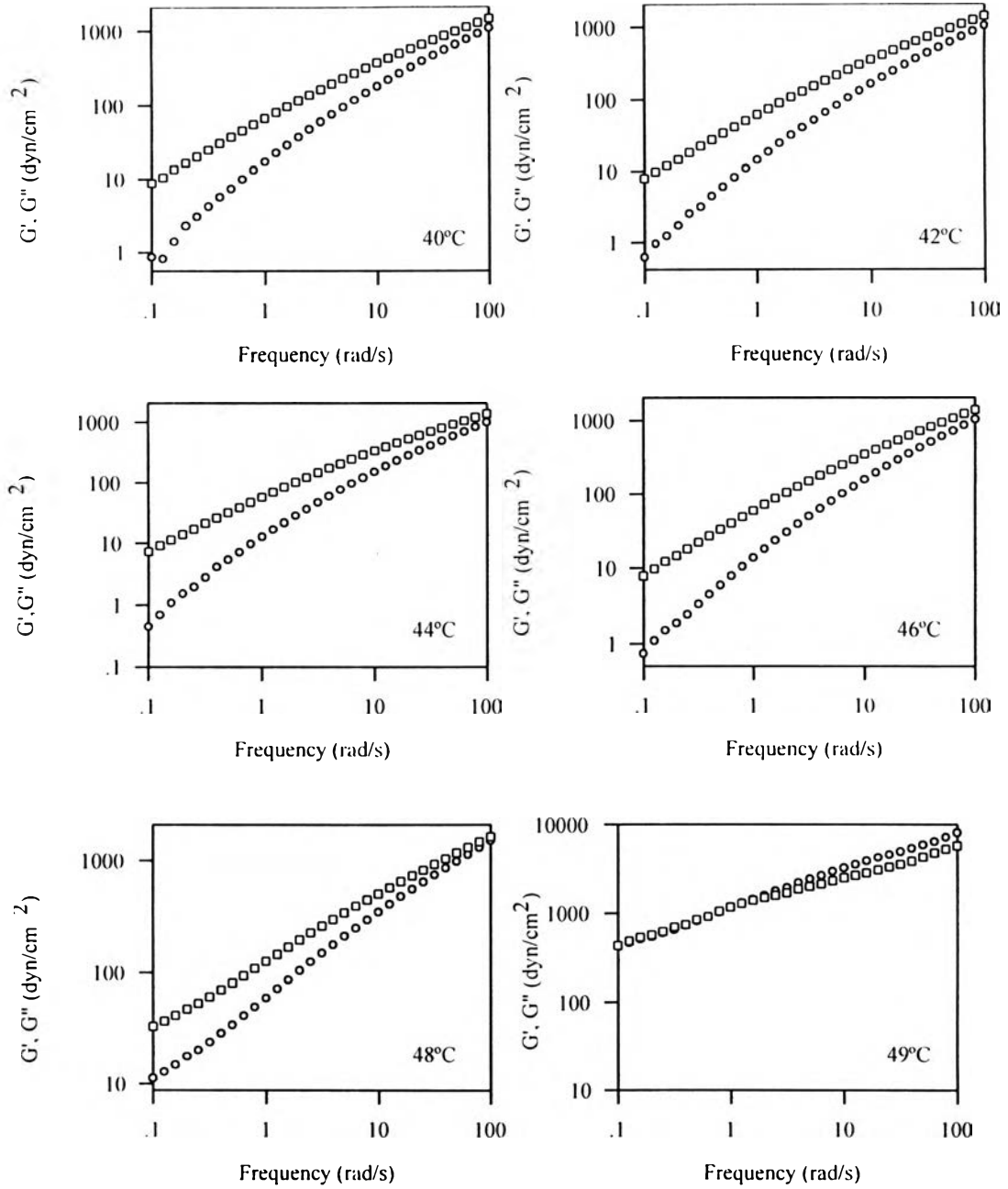


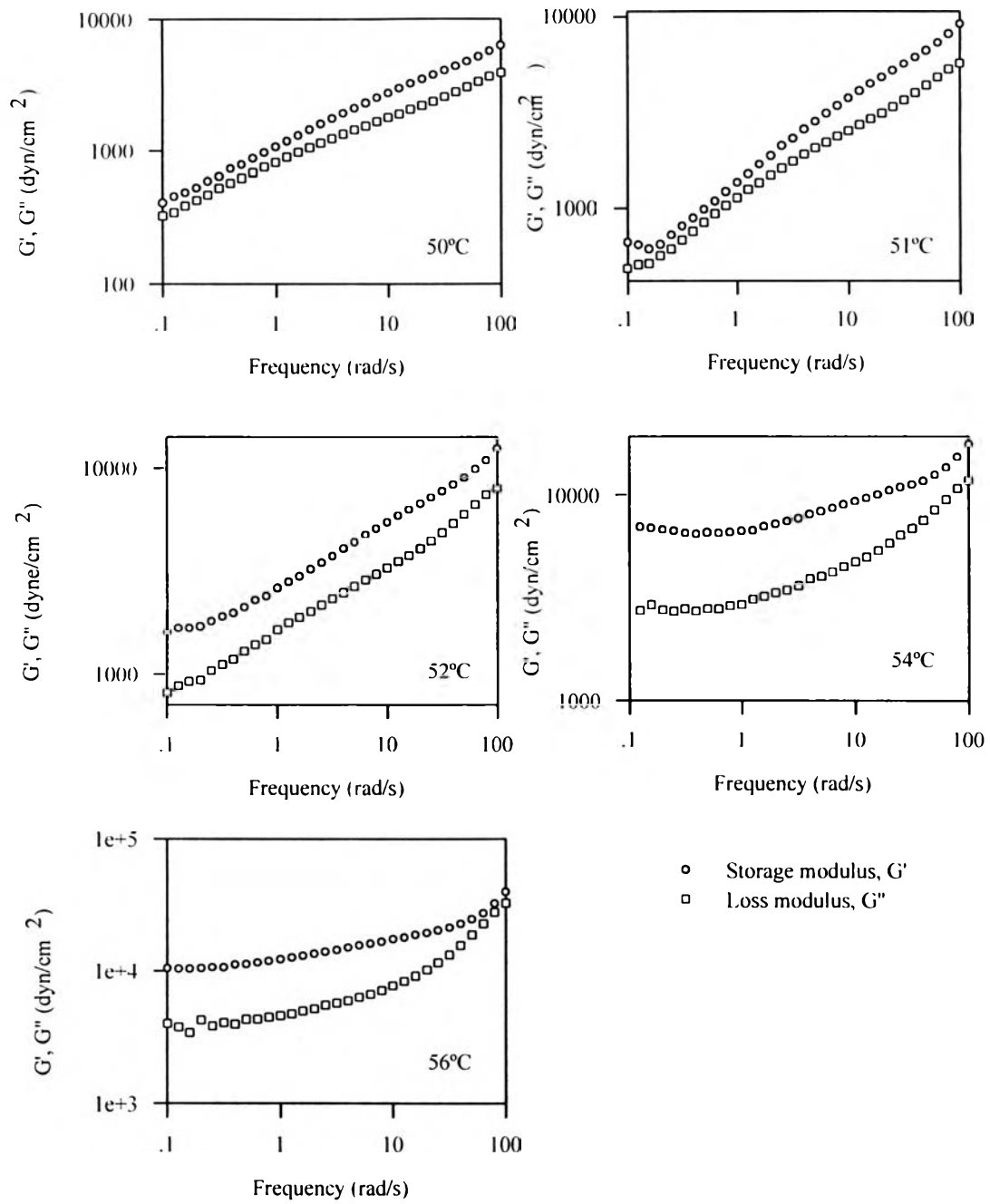
**Table G-6.3 (Cont.)** : Complex of 4.5%wt HPC/HTAB, Strains = 0.4-20.0%

Frequency (rad/s)	T = 48°C		T = 49°C		T = 50°C		T = 51°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	11.30	33.00	—	—	410.00	326.00	621.00	807.00
0.13	12.90	36.80	—	—	455.00	345.00	650.00	874.00
0.16	14.90	41.50	131.00	143.00	486.00	385.00	655.00	918.00
0.20	17.80	47.30	136.00	146.00	529.00	424.00	671.00	931.00
0.25	20.20	53.20	145.00	153.00	593.00	466.00	732.00	1040.00
0.32	23.90	60.90	146.00	159.00	642.00	522.00	812.00	1110.00
0.40	28.80	70.50	158.00	177.00	731.00	570.00	894.00	1180.00
0.50	34.20	80.70	171.00	197.00	787.00	619.00	988.00	1290.00
0.63	41.40	93.80	178.00	221.00	876.00	681.00	1090.00	1390.00
0.79	49.80	109.00	200.00	249.00	970.00	751.00	1220.00	1470.00
1.00	59.90	126.00	226.00	279.00	1070.00	811.00	1360.00	1650.00
1.26	72.30	146.00	258.00	314.00	1180.00	890.00	1510.00	1780.00
1.58	86.90	169.00	294.00	352.00	1300.00	967.00	1690.00	1890.00
2.00	105.00	196.00	336.00	394.00	1440.00	1050.00	1870.00	2020.00
2.51	126.00	227.00	384.00	441.00	1590.00	1130.00	2110.00	2170.00
3.16	150.00	261.00	439.00	493.00	1750.00	1230.00	2300.00	2330.00
3.98	179.00	299.00	502.00	550.00	1920.00	1330.00	2580.00	2490.00
5.01	212.00	342.00	572.00	610.00	2090.00	1430.00	2830.00	2670.00
6.31	251.00	392.00	648.00	676.00	2300.00	1530.00	3120.00	2870.00
7.94	296.00	446.00	733.00	745.00	2510.00	1650.00	3420.00	3060.00
10.00	349.00	506.00	830.00	822.00	2730.00	1770.00	3750.00	3280.00
12.60	409.00	575.00	937.00	906.00	2970.00	1890.00	4090.00	3520.00
15.80	480.00	650.00	1050.00	997.00	3240.00	2050.00	4470.00	3760.00
20.00	559.00	733.00	1180.00	1100.00	3500.00	2190.00	4830.00	4060.00
25.10	647.00	823.00	1320.00	1200.00	3770.00	2360.00	5240.00	4420.00
31.60	747.00	925.00	1470.00	1320.00	4080.00	2560.00	5670.00	4870.00
39.80	860.00	1040.00	1640.00	1450.00	4400.00	2790.00	6140.00	5380.00
50.10	989.00	1170.00	1830.00	1610.00	4780.00	3040.00	6680.00	5950.00
63.10	1140.00	1310.00	2050.00	1780.00	5200.00	3340.00	7350.00	6650.00
79.40	1310.00	1470.00	2300.00	1960.00	5730.00	3650.00	8190.00	7390.00
100.00	1520.00	1640.00	2620.00	2160.00	6350.00	3900.00	9200.00	7930.00
Strain (%)	10.0	10.0	10.0	10.0	0.4	0.4	1.0	1.0

**Table G-6.3 (Cont.)** : Complex of 4.5%wt HPC/HTAB, Strains = 0.4-20.0%

Frequency (rad/s)	T = 52°C		T = 54°C		T = 56°C	
	G'	G''	G'	G''	G'	G''
0.10	1600.00	807.00	—	—	10400.00	3390.00
0.13	1680.00	874.00	6470.00	2730.00	10400.00	3740.00
0.16	1680.00	918.00	6520.00	2740.00	10500.00	3820.00
0.20	1710.00	931.00	6520.00	2750.00	10500.00	3930.00
0.25	1810.00	1040.00	6570.00	2770.00	10700.00	3980.00
0.32	1910.00	1110.00	6590.00	2800.00	10700.00	4040.00
0.40	1990.00	1180.00	6670.00	2800.00	11200.00	4230.00
0.50	2120.00	1290.00	6680.00	2810.00	11300.00	4280.00
0.63	2300.00	1390.00	6720.00	2900.00	11600.00	4290.00
0.79	2400.00	1470.00	6780.00	2940.00	12000.00	4470.00
1.00	2630.00	1650.00	6910.00	2950.00	12300.00	4570.00
1.26	2820.00	1780.00	7000.00	3120.00	12700.00	4700.00
1.58	2990.00	1890.00	7040.00	3230.00	13100.00	4950.00
2.00	3240.00	2020.00	7220.00	3360.00	13600.00	5150.00
2.51	3480.00	2170.00	7450.00	3470.00	14100.00	5500.00
3.16	3760.00	2330.00	7680.00	3630.00	14500.00	5680.00
3.98	4080.00	2490.00	8050.00	3920.00	15100.00	5930.00
5.01	4380.00	2670.00	8320.00	4040.00	15700.00	6300.00
6.31	4740.00	2870.00	8610.00	4240.00	16200.00	6650.00
7.94	5090.00	3060.00	8980.00	4480.00	16800.00	7100.00
10.00	5470.00	3280.00	9290.00	4730.00	17500.00	7740.00
12.60	5870.00	3520.00	9640.00	4980.00	18100.00	8360.00
15.80	6270.00	3760.00	10000.00	5380.00	18900.00	9150.00
20.00	6720.00	4060.00	10500.00	5840.00	19600.00	10200.00
25.10	7200.00	4420.00	10900.00	6370.00	20500.00	11600.00
31.60	7730.00	4870.00	11200.00	6880.00	21500.00	13300.00
39.80	8310.00	5380.00	11700.00	7530.00	22900.00	15700.00
50.10	8970.00	5950.00	12500.00	8420.00	24900.00	18900.00
63.10	9860.00	6650.00	13600.00	9450.00	27600.00	22900.00
79.40	10900.00	7390.00	15300.00	10700.00	32700.00	28000.00
100.00	12400.00	7930.00	17600.00	11700.00	40100.00	32800.00
Strain (%)	1.0	1.0	1.0	1.0	1.0	1.0





**FigureG-6.3:** Plots of  $G'$  and  $G''$  vs frequency for complex of 4.5%wt HPC/HTAB at various temperatures.

**Table G-6.4** : Complex of 5.0%wt HPC/HTAB, Strain = 5.0%

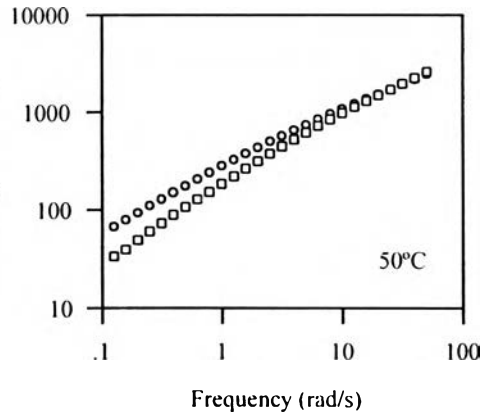
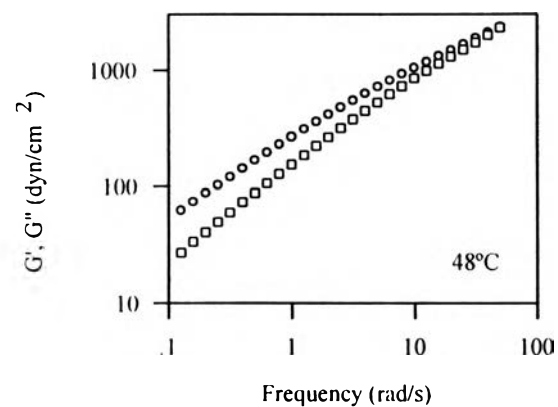
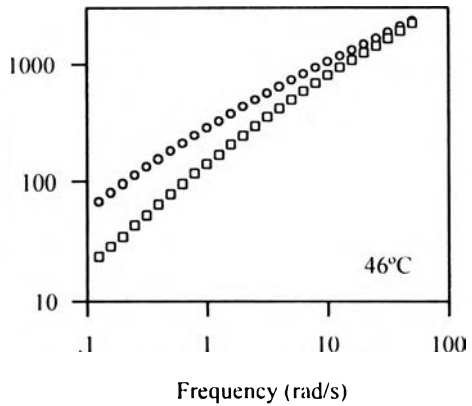
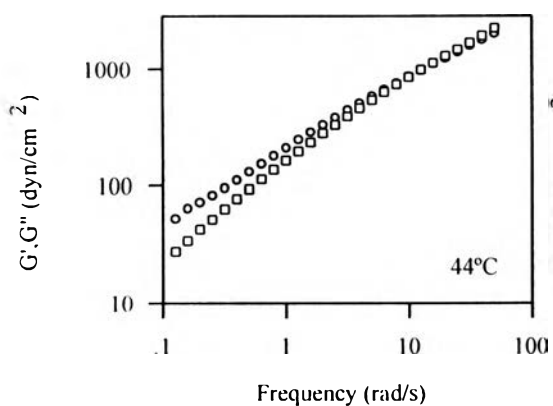
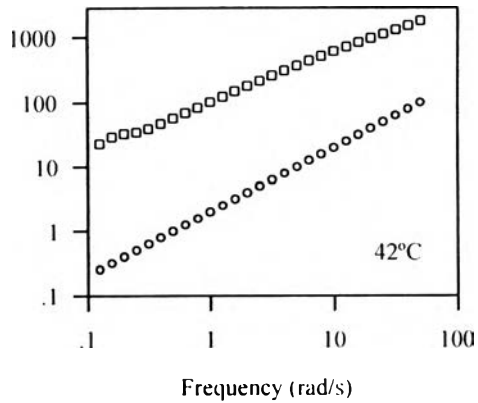
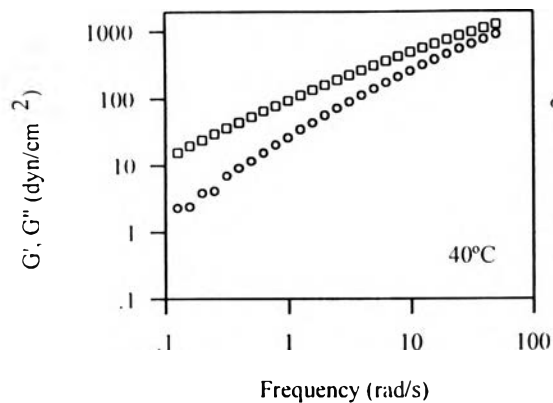
Frequency (rad/s)	T = 40°C		T = 42°C		T = 44°C		T = 46°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10			15.10	33.80	10.80	33.10	9.52	31.60
0.13			15.80	35.10	13.80	39.80	12.30	37.50
0.16	0.17	9.93	18.10	38.80	17.50	48.20	15.80	45.10
0.20	1.00	12.10	18.50	43.70	22.20	58.10	19.20	53.30
0.25	2.32	15.40	22.60	52.40	27.60	68.30	23.70	62.60
0.32	2.43	19.50	28.90	64.00	34.00	81.20	28.80	74.20
0.40	3.89	23.90	32.60	72.40	42.60	95.80	34.70	88.10
0.50	4.16	29.60	34.40	82.50	51.30	113.00	43.40	103.00
0.63	6.89	36.20	38.70	95.30	62.90	133.00	52.20	121.00
0.79	9.11	43.50	46.60	111.00	76.90	154.00	64.40	143.00
1.00	11.60	53.30	56.60	130.00	92.30	181.00	78.50	168.00
1.26	15.40	65.00	68.30	153.00	112.00	210.00	95.40	196.00
1.58	20.50	77.80	82.80	179.00	135.00	245.00	116.00	230.00
2.00	26.00	93.60	101.00	209.00	162.00	284.00	140.00	268.00
2.51	34.80	112.00	122.00	245.00	194.00	326.00	167.00	312.00
3.16	43.40	134.00	149.00	285.00	231.00	376.00	204.00	361.00
3.98	55.90	159.00	179.00	330.00	277.00	434.00	244.00	418.00
5.01	71.90	189.00	215.00	382.00	328.00	496.00	293.00	481.00
6.31	89.50	223.00	258.00	442.00	389.00	566.00	352.00	552.00
7.94	112.00	262.00	308.00	508.00	457.00	643.00	418.00	632.00
10.00	139.00	307.00	367.00	583.00	538.00	732.00	494.00	721.00
12.60	173.00	360.00	437.00	667.00	629.00	826.00	583.00	819.00
15.80	211.00	421.00	515.00	760.00	734.00	933.00	686.00	927.00
20.00	258.00	488.00	607.00	864.00	852.00	1050.00	802.00	1050.00
25.10	315.00	564.00	711.00	978.00	985.00	1180.00	934.00	1180.00
31.60	380.00	649.00	829.00	1110.00	1130.00	1320.00	1080.00	1320.00
39.80	456.00	745.00	963.00	1250.00	1300.00	1480.00	1250.00	1490.00
50.10	546.00	852.00	1110.00	1410.00	1480.00	1660.00	1430.00	1670.00
63.10	647.00	970.00	1290.00	1600.00	1690.00	1870.00	1650.00	1890.00
79.40	762.00	1100.00	1500.00	1810.00	1940.00	2100.00	1910.00	2120.00
100.00	895.00	1260.00	1760.00	2040.00	2260.00	2340.00	2220.00	2370.00

**Table G-6.4 (Cont.) : Complex of 5.0%wt HPC/HTAB, Strain = 5.0%**

Frequency (rad/s)	T = 48°C		T = 50°C		T = 51°C		T = 52°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	12.80	35.80	13.20	38.80	11.10	36.40	138.00	202.00
0.13	15.10	41.30	16.90	46.30	13.50	43.30	158.00	233.00
0.16	17.70	48.80	20.70	56.00	17.50	52.80	183.00	265.00
0.20	22.70	56.90	26.30	66.10	21.50	61.30	213.00	301.00
0.25	26.90	67.50	33.40	78.10	26.60	73.70	247.00	341.00
0.32	33.30	79.30	39.20	92.40	33.90	86.40	286.00	387.00
0.40	40.30	93.70	48.90	109.00	41.00	103.00	330.00	437.00
0.50	49.30	111.00	60.10	129.00	51.70	122.00	381.00	493.00
0.63	59.50	129.00	73.00	151.00	62.90	143.00	439.00	555.00
0.79	73.30	152.00	89.00	176.00	77.50	168.00	507.00	623.00
1.00	87.30	177.00	107.00	205.00	94.20	197.00	585.00	698.00
1.26	106.00	207.00	128.00	240.00	115.00	229.00	674.00	777.00
1.58	127.00	242.00	153.00	280.00	138.00	268.00	772.00	865.00
2.00	153.00	283.00	185.00	322.00	167.00	312.00	884.00	961.00
2.51	184.00	328.00	220.00	374.00	201.00	361.00	1010.00	1050.00
3.16	221.00	380.00	266.00	430.00	243.00	420.00	1150.00	1160.00
3.98	263.00	437.00	315.00	495.00	290.00	483.00	1310.00	1270.00
5.01	316.00	503.00	376.00	566.00	349.00	553.00	1480.00	1390.00
6.31	376.00	576.00	448.00	647.00	417.00	634.00	1670.00	1520.00
7.94	445.00	658.00	526.00	735.00	495.00	723.00	1880.00	1660.00
10.00	525.00	751.00	619.00	832.00	585.00	821.00	2100.00	1800.00
12.60	620.00	851.00	725.00	941.00	688.00	930.00	2350.00	1960.00
15.80	725.00	962.00	846.00	1060.00	805.00	1050.00	2610.00	2120.00
20.00	845.00	1080.00	981.00	1190.00	939.00	1180.00	2910.00	2320.00
25.10	980.00	1220.00	1130.00	1330.00	1080.00	1330.00	3210.00	2530.00
31.60	1130.00	1370.00	1300.00	1490.00	1250.00	1480.00	3540.00	2750.00
39.80	1300.00	1530.00	1490.00	1660.00	1430.00	1670.00	3890.00	3020.00
50.10	1490.00	1720.00	1700.00	1870.00	1640.00	1870.00	4280.00	3320.00
63.10	1710.00	1940.00	1940.00	2100.00	1880.00	2110.00	4740.00	3670.00
79.40	1980.00	2180.00	2230.00	2360.00	2160.00	2370.00	5310.00	4050.00
100.00	2310.00	2440.00	2590.00	2620.00	2520.00	2640.00	6040.00	4420.00

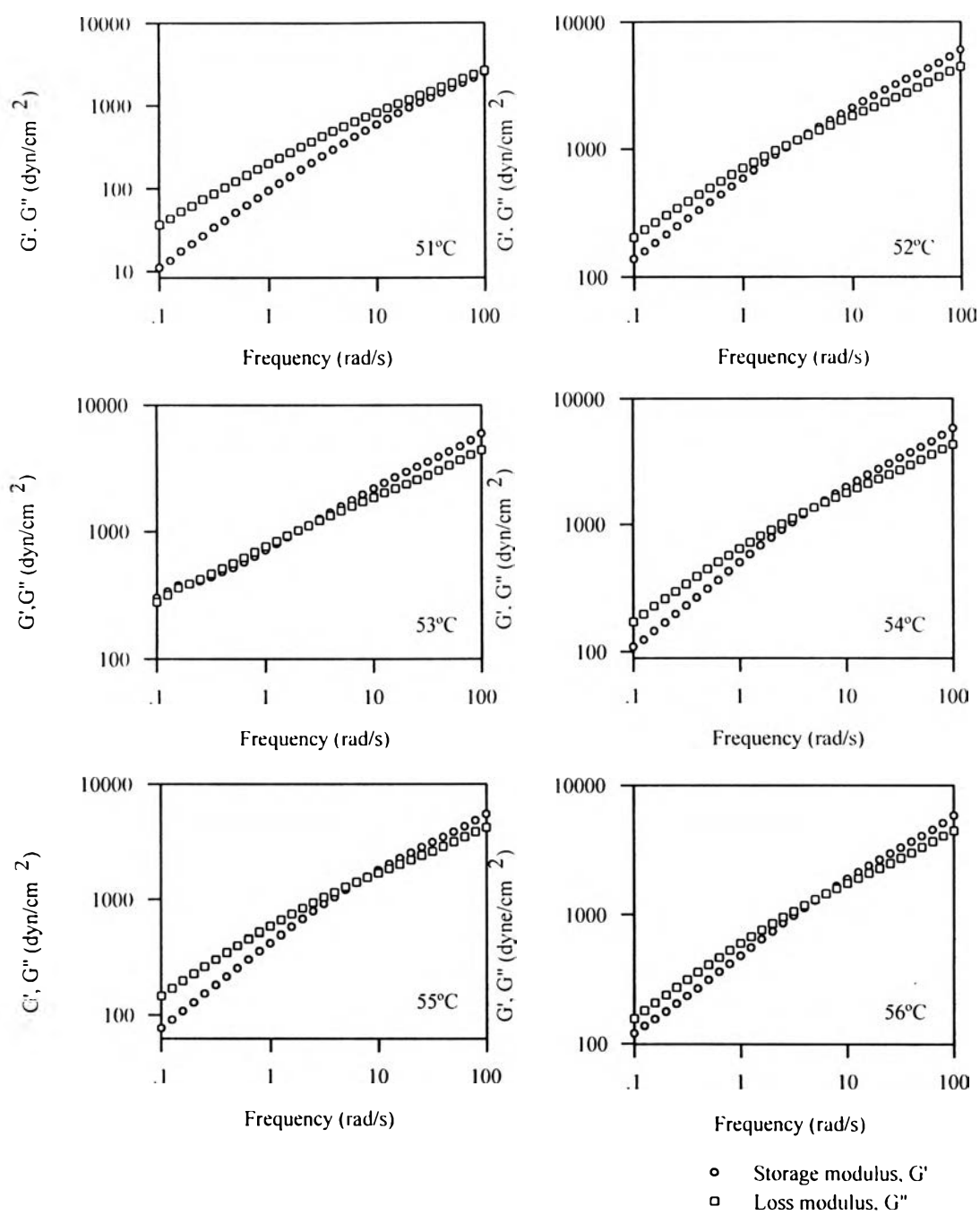
**Table G-6.4 (Cont.)** : Complex of 5.0%wt HPC/HTAB, Strain = 5.0%

Frequency (rad/s)	T = 53°C		T = 54°C		T = 55°C		T = 56°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	299.00	278.00	109.00	171.00	76.60	146.00	120.00	156.00
0.13	336.00	313.00	124.00	196.00	90.90	170.00	137.00	180.00
0.16	375.00	357.00	145.00	227.00	108.00	198.00	155.00	206.00
0.20	383.00	384.00	169.00	260.00	128.00	228.00	177.00	238.00
0.25	404.00	418.00	197.00	296.00	153.00	263.00	204.00	273.00
0.32	436.00	461.00	229.00	339.00	182.00	303.00	234.00	313.00
0.40	478.00	508.00	266.00	387.00	216.00	348.00	269.00	358.00
0.50	515.00	557.00	311.00	441.00	256.00	399.00	312.00	409.00
0.63	571.00	617.00	363.00	501.00	303.00	455.00	361.00	466.00
0.79	635.00	682.00	425.00	562.00	358.00	520.00	417.00	529.00
1.00	710.00	755.00	496.00	637.00	422.00	586.00	481.00	599.00
1.26	795.00	833.00	578.00	715.00	496.00	662.00	556.00	676.00
1.58	892.00	919.00	673.00	802.00	581.00	746.00	646.00	762.00
2.00	999.00	1010.00	780.00	895.00	678.00	836.00	744.00	854.00
2.51	1110.00	1100.00	903.00	1000.00	789.00	936.00	861.00	957.00
3.16	1250.00	1210.00	1030.00	1110.00	915.00	1040.00	985.00	1060.00
3.98	1400.00	1320.00	1190.00	1230.00	1050.00	1150.00	1130.00	1180.00
5.01	1570.00	1440.00	1360.00	1350.00	1210.00	1280.00	1290.00	1310.00
6.31	1750.00	1570.00	1540.00	1480.00	1390.00	1410.00	1470.00	1450.00
7.94	1950.00	1700.00	1740.00	1620.00	1580.00	1550.00	1670.00	1590.00
10.00	2170.00	1840.00	1970.00	1770.00	1790.00	1690.00	1890.00	1740.00
12.60	2410.00	2000.00	2210.00	1930.00	2020.00	1840.00	2130.00	1900.00
15.80	2670.00	2160.00	2480.00	2100.00	2270.00	2010.00	2390.00	2090.00
20.00	2940.00	2340.00	2750.00	2280.00	2530.00	2190.00	2660.00	2270.00
25.10	3230.00	2540.00	3050.00	2470.00	2820.00	2390.00	2960.00	2480.00
31.60	3540.00	2760.00	3370.00	2700.00	3120.00	2600.00	3280.00	2720.00
39.80	3880.00	3010.00	3730.00	2960.00	3460.00	2850.00	3640.00	2980.00
50.10	4260.00	3310.00	4120.00	3250.00	3830.00	3140.00	4040.00	3290.00
63.10	4700.00	3650.00	4580.00	3590.00	4260.00	3460.00	4500.00	3640.00
79.40	5250.00	4020.00	5130.00	3960.00	4790.00	3820.00	5070.00	4020.00
100.00	5940.00	4380.00	5830.00	4320.00	5440.00	4160.00	5780.00	4400.00



- Storage modulus,  $G'$
- Loss modulus,  $G''$





**FigureG-6.4:** Plots of  $G'$  and  $G''$  vs frequency for complex of 5.0%wt HPC/HTAB at various temperatures.

**Table G-6.5** : Complex of 5.5%wt HPC/HTAB, Strains = 4.0-10.0%

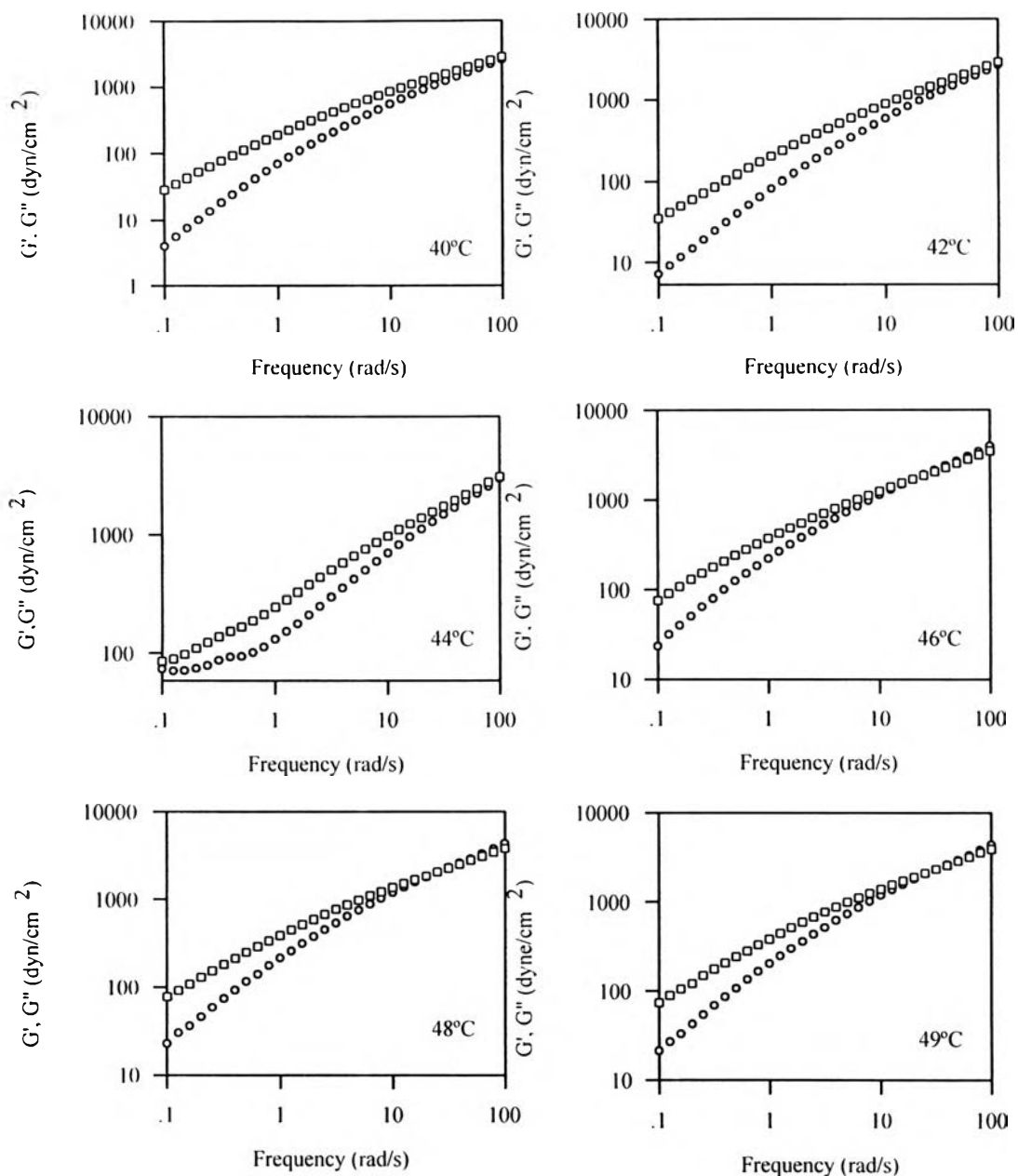
Frequency (rad/s)	T = 40°C		T = 42°C		T = 44°C		T = 46°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	3.96	28.40	7.21	35.00	70.80	85.20	23.60	75.60
0.13	5.58	34.80	9.18	41.70	71.40	89.10	31.90	90.50
0.16	7.53	42.20	11.70	49.80	73.60	97.70	40.30	107.00
0.20	10.10	51.70	14.90	59.70	74.50	110.00	51.20	129.00
0.25	13.60	62.60	19.30	71.40	78.80	123.00	65.00	152.00
0.32	18.30	75.90	24.80	85.30	87.20	138.00	80.10	178.00
0.40	24.20	91.50	31.80	102.00	93.00	153.00	99.90	206.00
0.50	31.80	110.00	40.60	121.00	94.00	167.00	125.00	240.00
0.63	41.40	132.00	51.50	144.00	101.00	187.00	151.00	278.00
0.79	53.40	157.00	64.80	170.00	113.00	212.00	184.00	322.00
1.00	68.70	186.00	81.40	200.00	132.00	245.00	222.00	371.00
1.26	86.90	220.00	101.00	236.00	153.00	282.00	267.00	424.00
1.58	109.00	260.00	124.00	276.00	177.00	326.00	318.00	485.00
2.00	136.00	304.00	153.00	322.00	210.00	377.00	381.00	549.00
2.51	170.00	357.00	188.00	377.00	250.00	435.00	450.00	631.00
3.16	208.00	415.00	230.00	438.00	299.00	502.00	532.00	707.00
3.98	255.00	481.00	279.00	507.00	355.00	575.00	624.00	799.00
5.01	311.00	556.00	338.00	585.00	421.00	658.00	730.00	900.00
6.31	376.00	640.00	407.00	672.00	500.00	751.00	852.00	1010.00
7.94	453.00	734.00	488.00	769.00	591.00	855.00	986.00	1120.00
10.00	544.00	839.00	582.00	877.00	699.00	970.00	1140.00	1250.00
12.60	648.00	954.00	691.00	997.00	820.00	1100.00	1300.00	1390.00
15.80	766.00	1080.00	816.00	1130.00	958.00	1230.00	1490.00	1540.00
20.00	901.00	1220.00	957.00	1270.00	1110.00	1380.00	1700.00	1700.00
25.10	1050.00	1380.00	1120.00	1430.00	1280.00	1550.00	1920.00	1870.00
31.60	1220.00	1550.00	1290.00	1610.00	1480.00	1730.00	2150.00	2060.00
39.80	1420.00	1740.00	1490.00	1810.00	1690.00	1940.00	2420.00	2280.00
50.10	1640.00	1960.00	1720.00	2030.00	1940.00	2180.00	2710.00	2540.00
63.10	1890.00	2210.00	1980.00	2290.00	2220.00	2440.00	3060.00	2820.00
79.40	2190.00	2490.00	2290.00	2580.00	2550.00	2750.00	3460.00	3150.00
100.00	2570.00	2790.00	2680.00	2890.00	2980.00	3070.00	3980.00	3480.00
Strain (%)	10.0	10.0	10.0	10.0	10.0	10.0	4.0	4.0



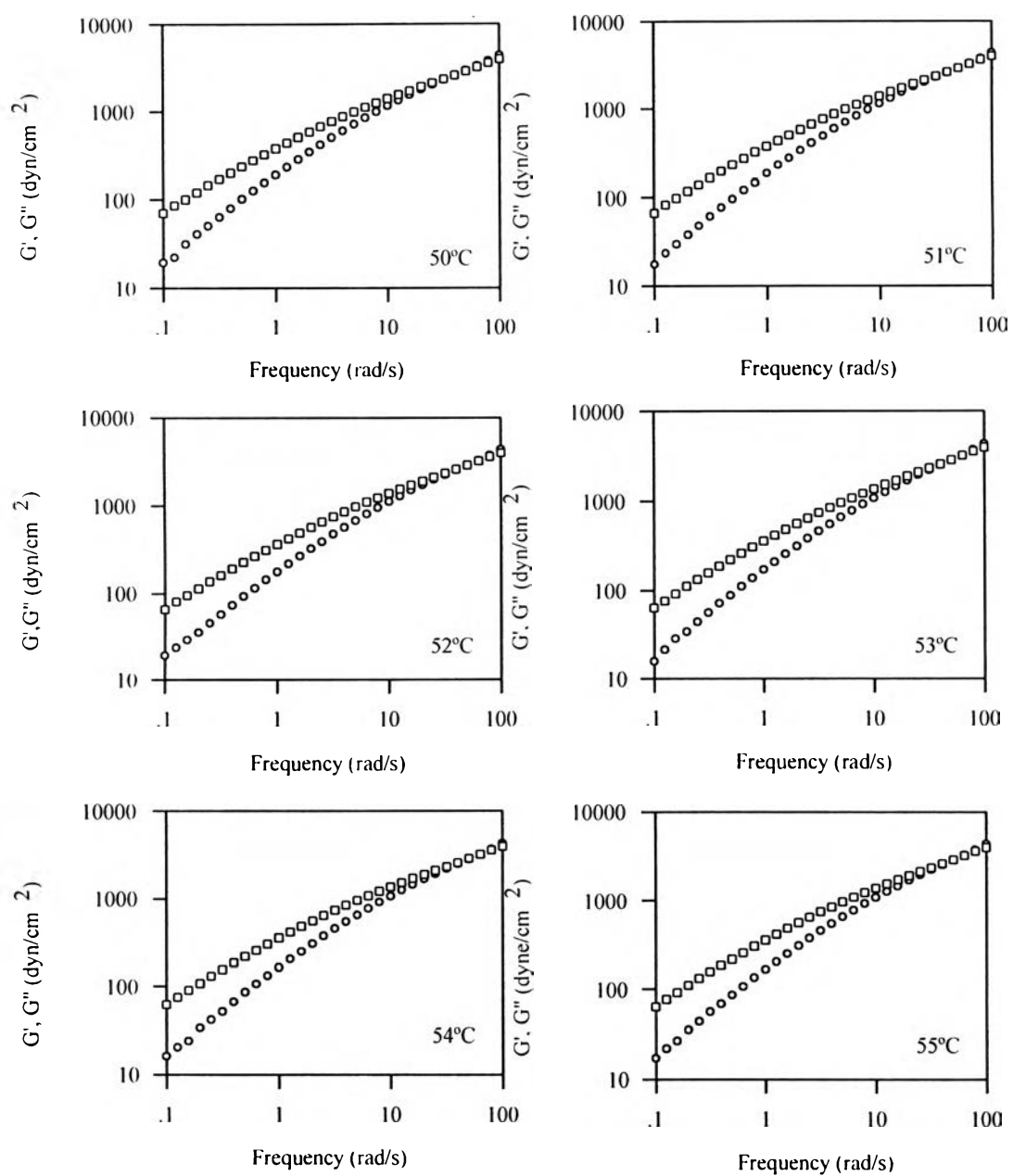


**Table G-6.5 (Cont.)** : Complex of 5.5%wt HPC/HTAB, Strains = 4.0-10.0%

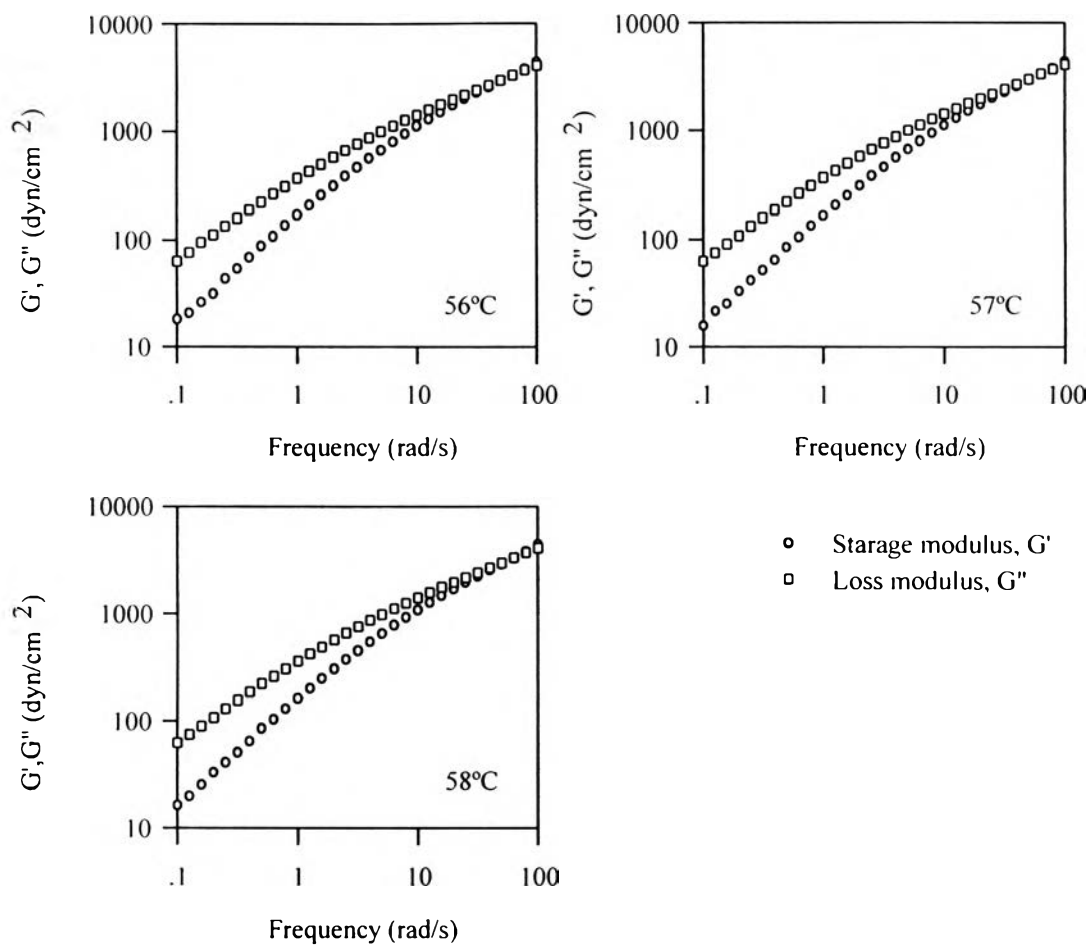
Frequency (rad/s)	T = 56°C		T = 57°C		T = 58°C	
	G'	G''	G'	G''	G'	G''
0.10	18.10	63.10	15.70	62.60	16.30	62.10
0.13	20.70	75.80	21.60	74.80	19.90	74.30
0.16	26.20	93.90	25.40	89.60	25.50	89.20
0.20	31.30	111.00	33.10	107.00	33.10	107.00
0.25	43.60	133.00	41.70	131.00	40.90	130.00
0.32	54.20	157.00	52.00	156.00	50.80	155.00
0.40	68.70	187.00	64.50	184.00	64.80	185.00
0.50	87.30	221.00	85.00	219.00	84.80	220.00
0.63	108.00	262.00	105.00	260.00	104.00	258.00
0.79	136.00	307.00	133.00	307.00	130.00	303.00
1.00	169.00	365.00	164.00	362.00	162.00	357.00
1.26	208.00	422.00	205.00	419.00	200.00	417.00
1.58	256.00	490.00	251.00	489.00	247.00	485.00
2.00	314.00	570.00	308.00	566.00	304.00	565.00
2.51	384.00	657.00	377.00	657.00	372.00	656.00
3.16	460.00	754.00	455.00	755.00	450.00	749.00
3.98	557.00	863.00	553.00	861.00	542.00	861.00
5.01	663.00	981.00	661.00	986.00	649.00	978.00
6.31	796.00	1110.00	789.00	1110.00	778.00	1110.00
7.94	938.00	1250.00	934.00	1260.00	919.00	1250.00
10.00	1110.00	1400.00	1100.00	1410.00	1080.00	1400.00
12.60	1290.00	1570.00	1290.00	1570.00	1270.00	1570.00
15.80	1500.00	1750.00	1500.00	1760.00	1480.00	1760.00
20.00	1730.00	1940.00	1730.00	1950.00	1710.00	1950.00
25.10	1990.00	2150.00	1980.00	2160.00	1970.00	2160.00
31.60	2270.00	2380.00	2250.00	2390.00	2250.00	2390.00
39.80	2570.00	2650.00	2560.00	2660.00	2560.00	2670.00
50.10	2910.00	2940.00	2900.00	2960.00	2900.00	2960.00
63.10	3310.00	3280.00	3310.00	3310.00	3290.00	3310.00
79.40	3790.00	3660.00	3800.00	3690.00	3790.00	3690.00
100.00	4400.00	4040.00	4410.00	4080.00	4400.00	4080.00
Strain (%)	4.0	4.0	4.0	4.0	4.0	4.0



- Storage modulus,  $G'$
- Loss modulus,  $G''$



- Storage modulus,  $G'$
- Loss modulus,  $G''$



**FigureG-6.5:** Plots of  $G'$  and  $G''$  vs frequency for complex of 5.5%wt HPC/HTAB at various temperatures.



**Table G-6.6** : Complex of 6.0%wt HPC/HTAB, Strains = 0.4-5.0%

Frequency (rad/s)	T = 40°C		T = 42°C		T = 44°C		T = 46°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	7.14	41.70	33.10	73.10	114.00	209.00	73.70	163.00
0.13	9.44	50.60	37.90	83.60	139.00	240.00	89.60	185.00
0.16	13.30	63.30	49.30	101.00	175.00	293.00	113.00	217.00
0.20	17.50	75.20	52.40	114.00	214.00	314.00	132.00	254.00
0.25	23.00	90.90	54.00	119.00	254.00	386.00	159.00	295.00
0.32	30.20	109.00	57.00	139.00	302.00	430.00	198.00	346.00
0.40	40.60	132.00	68.90	160.00	354.00	501.00	236.00	396.00
0.50	52.40	158.00	82.40	188.00	432.00	562.00	281.00	458.00
0.63	68.00	185.00	99.90	219.00	481.00	626.00	331.00	522.00
0.79	83.70	220.00	122.00	257.00	572.00	719.00	400.00	591.00
1.00	107.00	260.00	148.00	296.00	679.00	803.00	472.00	677.00
1.26	135.00	306.00	179.00	344.00	784.00	908.00	558.00	763.00
1.58	167.00	356.00	216.00	400.00	907.00	1010.00	660.00	861.00
2.00	206.00	415.00	260.00	462.00	1040.00	1120.00	772.00	966.00
2.51	253.00	480.00	313.00	534.00	1190.00	1250.00	899.00	1090.00
3.16	309.00	557.00	377.00	614.00	1360.00	1400.00	1050.00	1210.00
3.98	375.00	638.00	447.00	702.00	1540.00	1510.00	1220.00	1330.00
5.01	452.00	734.00	534.00	802.00	1750.00	1670.00	1390.00	1480.00
6.31	541.00	838.00	634.00	913.00	1980.00	1820.00	1590.00	1630.00
7.94	644.00	953.00	747.00	1030.00	2250.00	1990.00	1820.00	1800.00
10.00	767.00	1080.00	877.00	1170.00	2520.00	2170.00	2070.00	1970.00
12.60	905.00	1220.00	1030.00	1310.00	2810.00	2360.00	2340.00	2140.00
15.80	1060.00	1370.00	1200.00	1470.00	3140.00	2590.00	2620.00	2330.00
20.00	1240.00	1550.00	1380.00	1640.00	3460.00	2800.00	2920.00	2550.00
25.10	1430.00	1740.00	1590.00	1830.00	3840.00	3050.00	3260.00	2780.00
31.60	1650.00	1940.00	1820.00	2050.00	4230.00	3310.00	3620.00	3050.00
39.80	1890.00	2180.00	2080.00	2290.00	4630.00	3660.00	4000.00	3330.00
50.10	2160.00	2440.00	2370.00	2560.00	5100.00	4050.00	4420.00	3680.00
63.10	2480.00	2740.00	2700.00	2870.00	5700.00	4510.00	4930.00	4080.00
79.40	2860.00	3090.00	3100.00	3210.00	6380.00	4970.00	5570.00	4510.00
100.00	3340.00	3450.00	3610.00	3580.00	7240.00	5430.00	6340.00	4940.00
Strain (%)	5.0	5.0	5.0	5.0	1.0	1.0	1.0	1.0

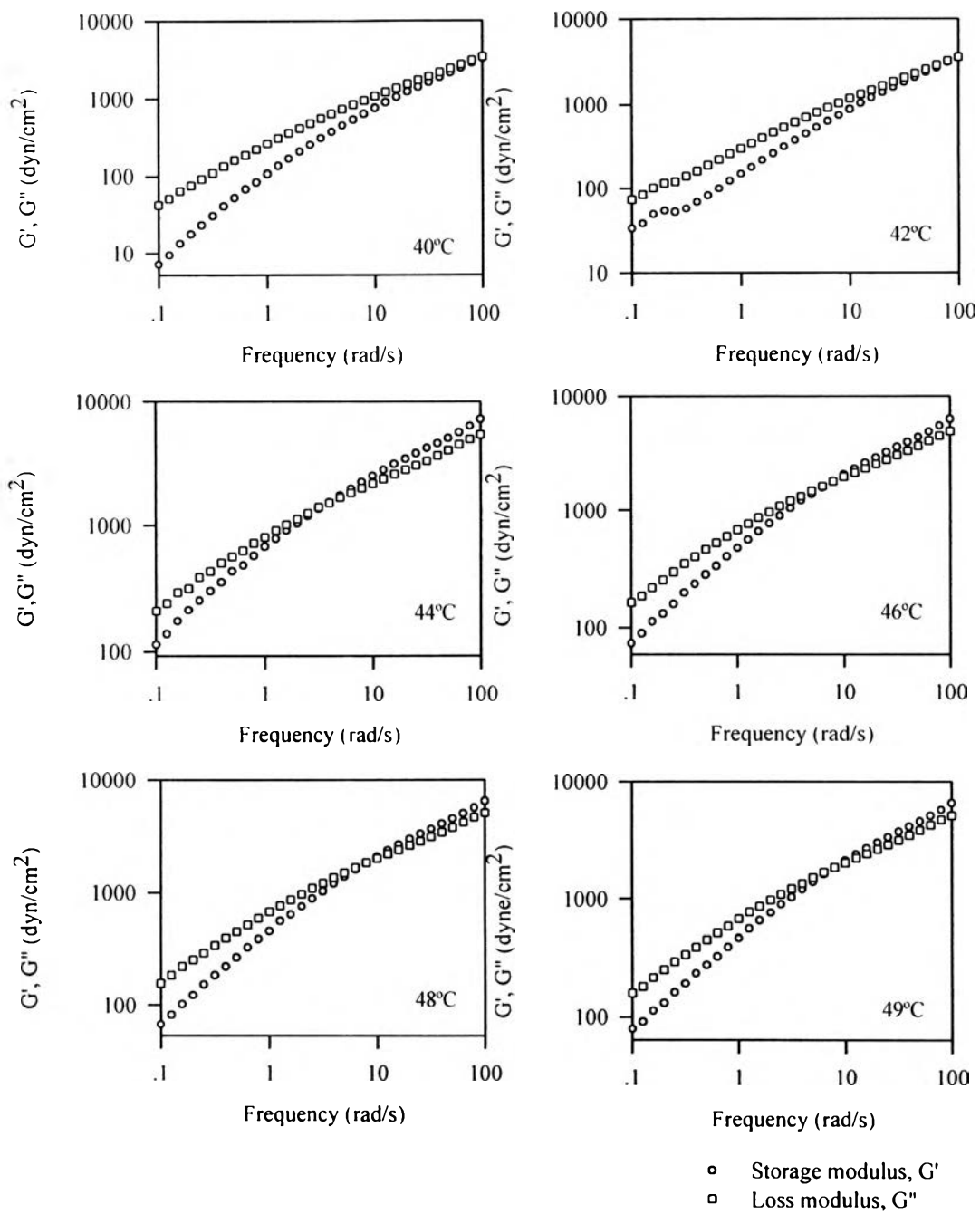
**Table G-6.6 (Cont.)** : Complex of 6.0%wt HPC/HTAB, Strains = 0.4-5.0%

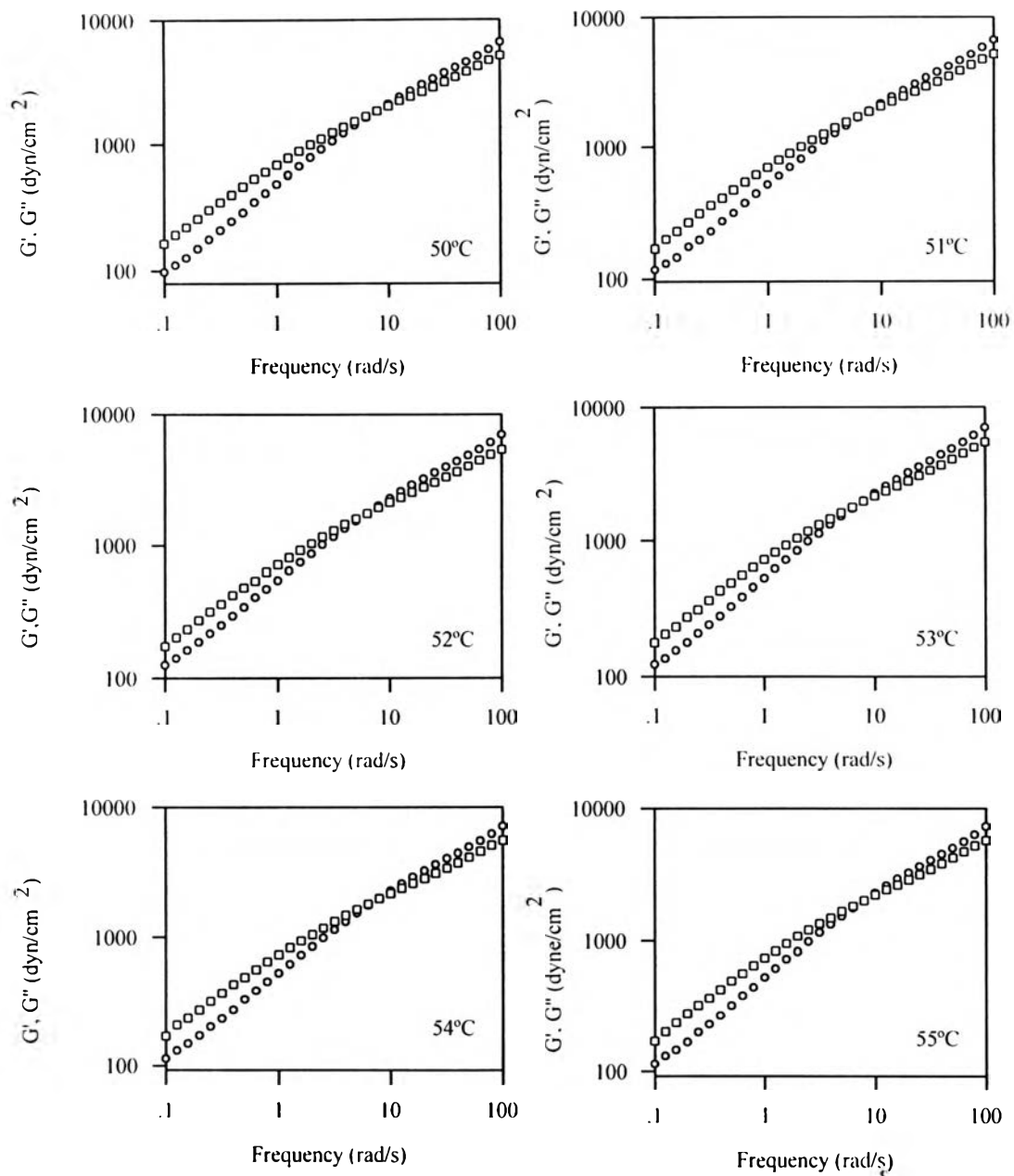
Frequency (rad/s)	T = 48°C		T = 49°C		T = 50°C		T = 51°C	
	G'	G''	G'	G''	G'	G''	G'	G''
0.10	67.60	156.00	78.90	159.00	97.60	163.00	117.00	168.00
0.13	82.20	184.00	91.10	181.00	110.00	192.00	130.00	198.00
0.16	102.00	220.00	113.00	216.00	126.00	220.00	145.00	227.00
0.20	123.00	252.00	132.00	252.00	149.00	256.00	174.00	264.00
0.25	153.00	290.00	163.00	295.00	176.00	302.00	196.00	309.00
0.32	185.00	338.00	194.00	339.00	209.00	345.00	227.00	358.00
0.40	221.00	394.00	236.00	392.00	245.00	396.00	271.00	404.00
0.50	267.00	449.00	278.00	453.00	287.00	460.00	313.00	466.00
0.63	326.00	518.00	329.00	519.00	347.00	529.00	371.00	536.00
0.79	387.00	592.00	394.00	590.00	410.00	601.00	438.00	612.00
1.00	458.00	676.00	469.00	678.00	482.00	682.00	513.00	695.00
1.26	562.00	763.00	563.00	776.00	568.00	775.00	599.00	793.00
1.58	644.00	858.00	660.00	868.00	670.00	877.00	701.00	891.00
2.00	755.00	964.00	769.00	975.00	782.00	988.00	810.00	1000.00
2.51	888.00	1090.00	899.00	1090.00	911.00	1100.00	953.00	1130.00
3.16	1030.00	1210.00	1040.00	1220.00	1060.00	1240.00	1110.00	1250.00
3.98	1200.00	1350.00	1210.00	1350.00	1230.00	1370.00	1270.00	1400.00
5.01	1380.00	1490.00	1400.00	1510.00	1420.00	1520.00	1460.00	1550.00
6.31	1590.00	1650.00	1610.00	1670.00	1630.00	1670.00	1680.00	1710.00
7.94	1820.00	1820.00	1840.00	1830.00	1850.00	1850.00	1910.00	1880.00
10.00	2070.00	1980.00	2100.00	2000.00	2110.00	2020.00	2170.00	2060.00
12.60	2350.00	2170.00	2370.00	2190.00	2390.00	2220.00	2450.00	2250.00
15.80	2640.00	2370.00	2670.00	2390.00	2680.00	2410.00	2750.00	2460.00
20.00	2960.00	2590.00	2990.00	2620.00	3020.00	2640.00	3070.00	2670.00
25.10	3290.00	2820.00	3320.00	2840.00	3360.00	2870.00	3440.00	2930.00
31.60	3650.00	3080.00	3700.00	3110.00	3730.00	3150.00	3810.00	3190.00
39.80	4060.00	3390.00	4100.00	3420.00	4140.00	3460.00	4220.00	3510.00
50.10	4500.00	3740.00	4530.00	3790.00	4580.00	3820.00	4680.00	3880.00
63.10	5020.00	4160.00	5080.00	4190.00	5110.00	4230.00	5210.00	4310.00
79.40	5650.00	4610.00	5700.00	4650.00	5790.00	4700.00	5890.00	4770.00
100.00	6480.00	5050.00	6530.00	5070.00	6620.00	5150.00	6730.00	5210.00
Strain (%)	0.4	0.4	0.4	0.4	1.0	1.0	1.0	1.0



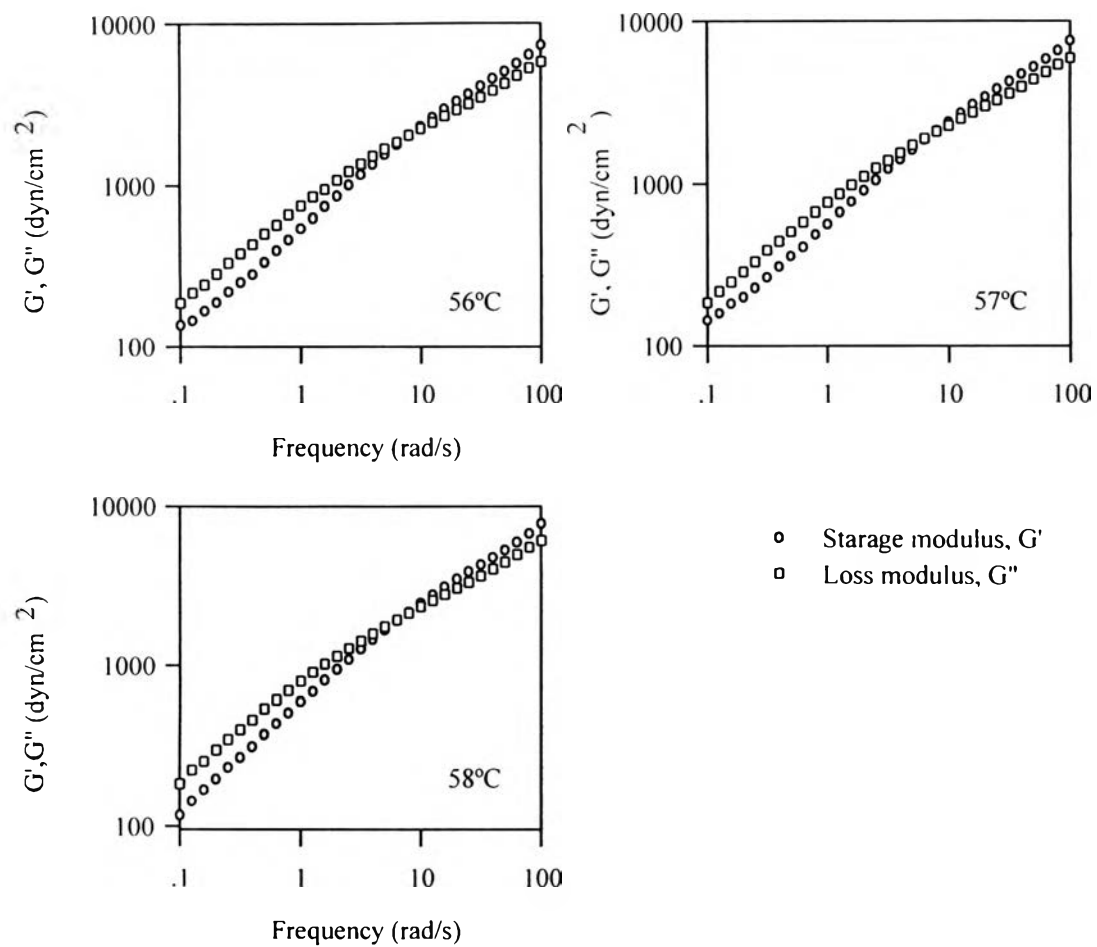
**Table G-6.6 (Cont.) : Complex of 6.0%wt HPC/HTAB, Strains = 0.4-5.0%**

Frequency (rad/s)	T = 56°C		T = 57°C		T = 58°C	
	G'	G''	G'	G''	G'	G''
0.10	136.00	187.00	144.00	185.00	118.00	184.00
0.13	145.00	216.00	159.00	217.00	144.00	223.00
0.16	167.00	243.00	183.00	248.00	169.00	252.00
0.20	189.00	283.00	201.00	287.00	196.00	296.00
0.25	220.00	331.00	229.00	331.00	231.00	345.00
0.32	251.00	379.00	266.00	391.00	267.00	395.00
0.40	282.00	434.00	311.00	445.00	311.00	456.00
0.50	336.00	504.00	359.00	510.00	371.00	535.00
0.63	396.00	572.00	411.00	586.00	435.00	607.00
0.79	463.00	661.00	490.00	673.00	504.00	692.00
1.00	543.00	748.00	570.00	768.00	593.00	792.00
1.26	627.00	851.00	672.00	868.00	688.00	901.00
1.58	743.00	945.00	780.00	987.00	809.00	1020.00
2.00	861.00	1080.00	913.00	1110.00	940.00	1140.00
2.51	1010.00	1220.00	1060.00	1250.00	1090.00	1280.00
3.16	1170.00	1360.00	1240.00	1390.00	1270.00	1420.00
3.98	1350.00	1520.00	1410.00	1550.00	1460.00	1580.00
5.01	1550.00	1680.00	1620.00	1730.00	1680.00	1760.00
6.31	1790.00	1850.00	1870.00	1900.00	1920.00	1940.00
7.94	2030.00	2040.00	2130.00	2100.00	2180.00	2140.00
10.00	2320.00	2240.00	2410.00	2280.00	2480.00	2350.00
12.60	2630.00	2450.00	2730.00	2520.00	2790.00	2570.00
15.80	2960.00	2680.00	3070.00	2750.00	3140.00	2800.00
20.00	3310.00	2920.00	3440.00	3000.00	3510.00	3070.00
25.10	3680.00	3180.00	3830.00	3270.00	3900.00	3340.00
31.60	4100.00	3490.00	4250.00	3580.00	4330.00	3660.00
39.80	4550.00	3840.00	4710.00	3940.00	4800.00	4040.00
50.10	5040.00	4250.00	5230.00	4370.00	5330.00	4460.00
63.10	5640.00	4740.00	5840.00	4860.00	5960.00	4980.00
79.40	6400.00	5260.00	6600.00	5390.00	6750.00	5530.00
100.00	7340.00	5770.00	7580.00	5920.00	7780.00	6070.00
Strain (%)	1.0	1.0	1.0	1.0	1.0	1.0





- Storage modulus,  $G'$
- Loss modulus,  $G''$



**FigureG-6.6:** Plots of  $G'$  and  $G''$  vs frequency for complex of 6.0%wt HPC/HTAB at various temperatures.

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