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APPENDICES

Appendix A Scanning Electron Microscopy Analysis

Table A1 Dispersed phase sizes of their blends

Blend systems	Amount of compatibilizers	% Zinc-neutralization	Average Tensile Modulus (MPa)	SD
80/20			34.2	±14.5
80/20	1 phr	0	3.8	±2.4
80/20	1 phr	25	3.1	±1.8
80/20	1 phr	50	2.7	±1.4
80/20	1 phr	100	4.1	±3.0
80/20	10 phr	0	0.8	±0.3
80/20	10 phr	25	0.8	±0.5
80/20	10 phr	50	1.0	±0.6
80/20	10 phr	100	3.3	±2.1
20/80	-	-	3.5	±2.2
20/80	1 phr	0	1.7	±0.8
20/80	1 phr	25	0.9	±0.4
20/80	1 phr	50	1.0	±0.4
20/80	1 phr	100	2.0	±1.5
20/80	10 phr	0	0.3	±0.1
20/80	10 phr	25	0.3	±0.2
20/80	10 phr	50	0.5	±0.2
20/80	10 phr	100	0.6	±0.2

Appendix B Mechanical Properties

Table B1 Tensile strength of their blends

Blend systems	Amount of compatibilizers	% Zinc-neutralization	Average Tensile Strength (MPa)	SD
100/0/0			59.42	±4.96
0/100/0			25.85	±0.25
80/20			37.26	±2.50
80/20	1 phr	0	49.40	±4.65
80/20	1 phr	25	52.26	±1.62
80/20	1 phr	50	53.63	±0.27
80/20	1 phr	75	40.68	±0.34
80/20	1 phr	100	40.61	±11.69
80/20	10 phr	0	49.10	±1.24
80/20	10 phr	25	54.56	±0.71
80/20	10 phr	50	55.94	±1.04
80/20	10 phr	75	44.90	±1.18
80/20	10 phr	100	47.84	±2.26
20/80	-	-	18.93	±1.35
20/80	1 phr	0	23.84	±6.61
20/80	1 phr	25	28.15	±0.71
20/80	1 phr	50	27.64	±0.21
20/80	1 phr	75	25.30	±1.22
20/80	1 phr	100	25.64	±0.52
20/80	10 phr	0	28.04	±1.35
20/80	10 phr	25	27.65	±1.11
20/80	10 phr	50	27.58	±0.93
20/80	10 phr	75	26.37	1.24
20/80	10 phr	100	27.62	±1.74

Table B2 Tensile modulus of their blends

Blend systems	Amount of compatibilizers	% Zinc-neutralization	AverageTensile Modulus (MPa)	SD
100/0/0			460.30	±22.51
0/100/0			383.60	±126.55
80/20			610.65	±77.84
80/20	1 phr	0	661.83	±48.49
80/20	1 phr	25	675.05	±40.40
80/20	1 phr	50	663.23	±35.05
80/20	1 phr	75	700.42	±46.29
80/20	1 phr	100	634.33	±48.29
80/20	10 phr	0	622.28	±19.54
80/20	10 phr	25	605.25	±50.61
80/20	10 phr	50	673.20	±42.07
80/20	10 phr	75	723.86	±45.04
80/20	10 phr	100	602.70	±72.06
20/80	-	-	822.93	±30.96
20/80	1 phr	0	649.45	±30.33
20/80	1 phr	25	648.00	±33.27
20/80	1 phr	50	582.43	±47.01
20/80	1 phr	75	507.09	±3.86
20/80	1 phr	100	651.70	±36.71
20/80	10 phr	0	650.40	±49.02
20/80	10 phr	25	641.68	±48.31
20/80	10 phr	50	629.15	±34.47
20/80	10 phr	75	497.15	±14.49
20/80	10 phr	100	637.78	±20.21

Table B3 % Elongation at break of their blends

Blend systems	Amount of compatibilizers	% Zinc-neutralization	Average Elongation at break (%)	SD
100/0/0			2437.33	±1248.39
0/100/0			701.30	±67.49
80/20			46.34	±11.54
80/20	1 phr	0	218.23	±110.02
80/20	1 phr	25	176.62	±115.58
80/20	1 phr	50	72.75	±17.73
80/20	1 phr	75	38.42	±4.15
80/20	1 phr	100	109.17	±55.08
80/20	10 phr	0	488.20	±108.62
80/20	10 phr	25	455.00	±63.99
80/20	10 phr	50	453.75	±32.56
80/20	10 phr	75	233.42	±90.97
80/20	10 phr	100	368.63	±142.22
20/80	-	-	125.04	±138.28
20/80	1 phr	0	11.06	±4.06
20/80	1 phr	25	24.07	±9.60
20/80	1 phr	50	13.12	±3.50
20/80	1 phr	75	13.75	±2.85
20/80	1 phr	100	30.67	±3.35
20/80	10 phr	0	159.80	±35.73
20/80	10 phr	25	466.20	±151.87
20/80	10 phr	50	218.27	±89.29
20/80	10 phr	75	293.00	±42.81
20/80	10 phr	100	133.74	±46.00

Appendix C Dynamic Mechanical Analysis

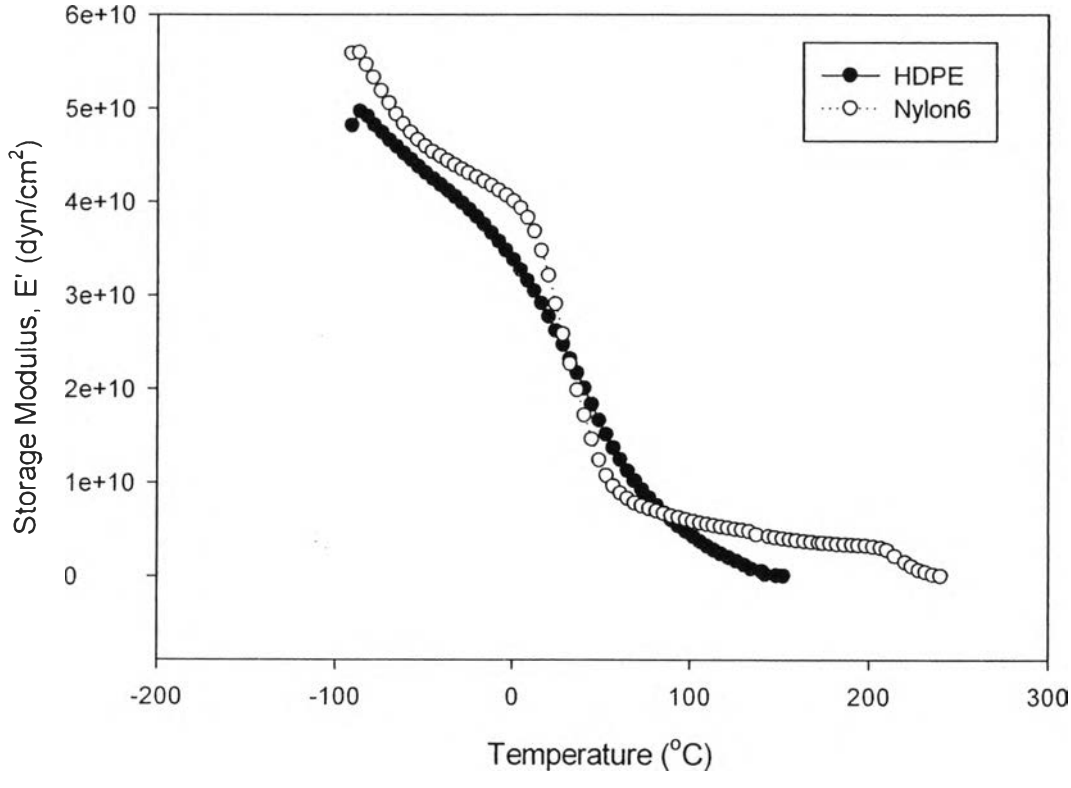

Figure C1 Temperature dependence of storage modulus (E') of neat Nylon6 and HDPE

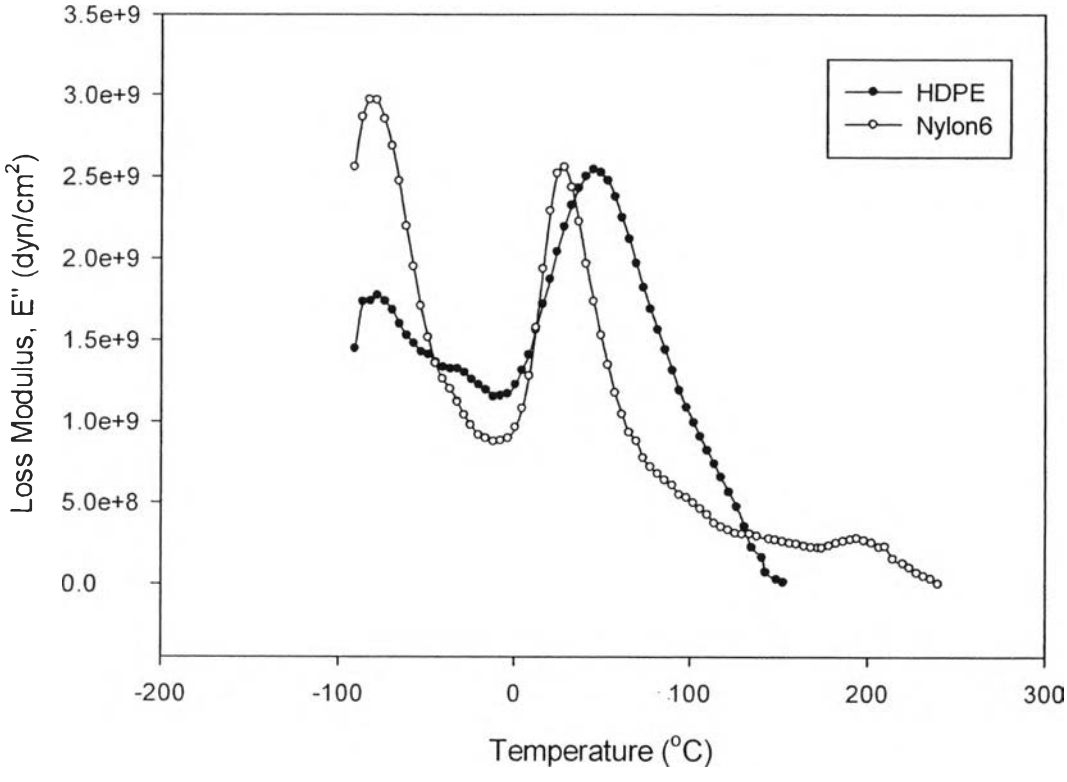

Figure C2 Temperature dependence of loss modulus (E'') of neat Nylon6 and HDPE

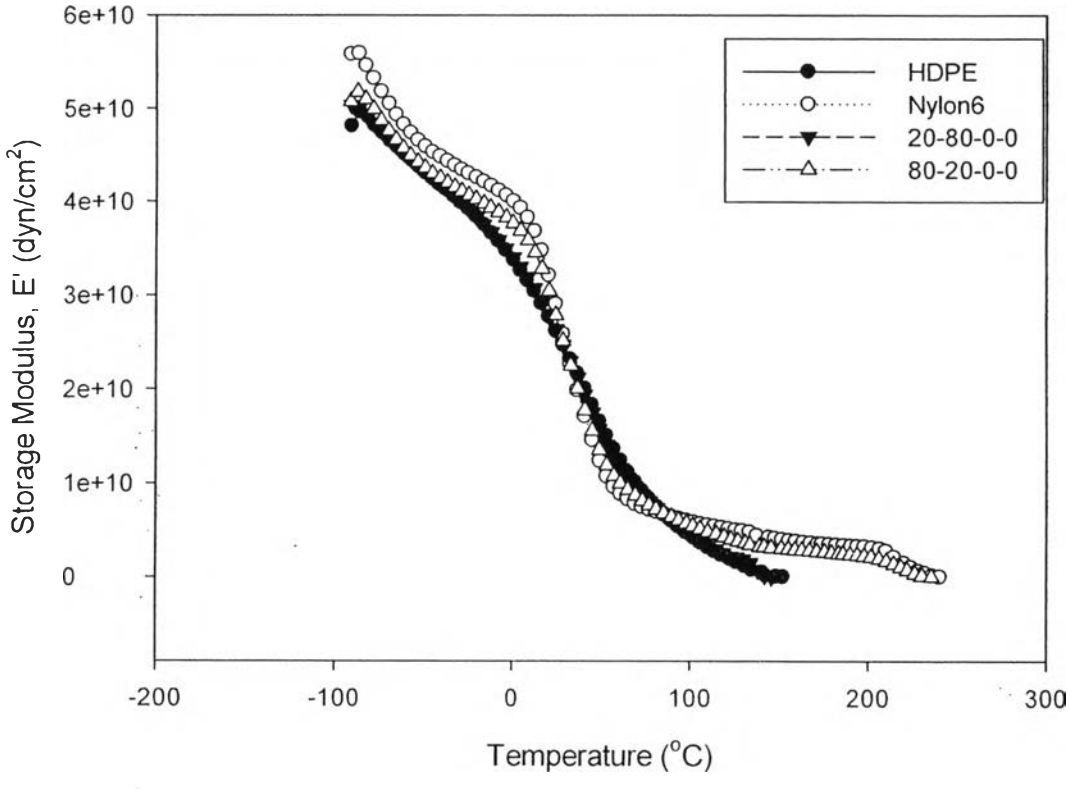

Figure C3 Temperature dependence of storage modulus (E') of Nylon6/HDPE blend without compatibilizer

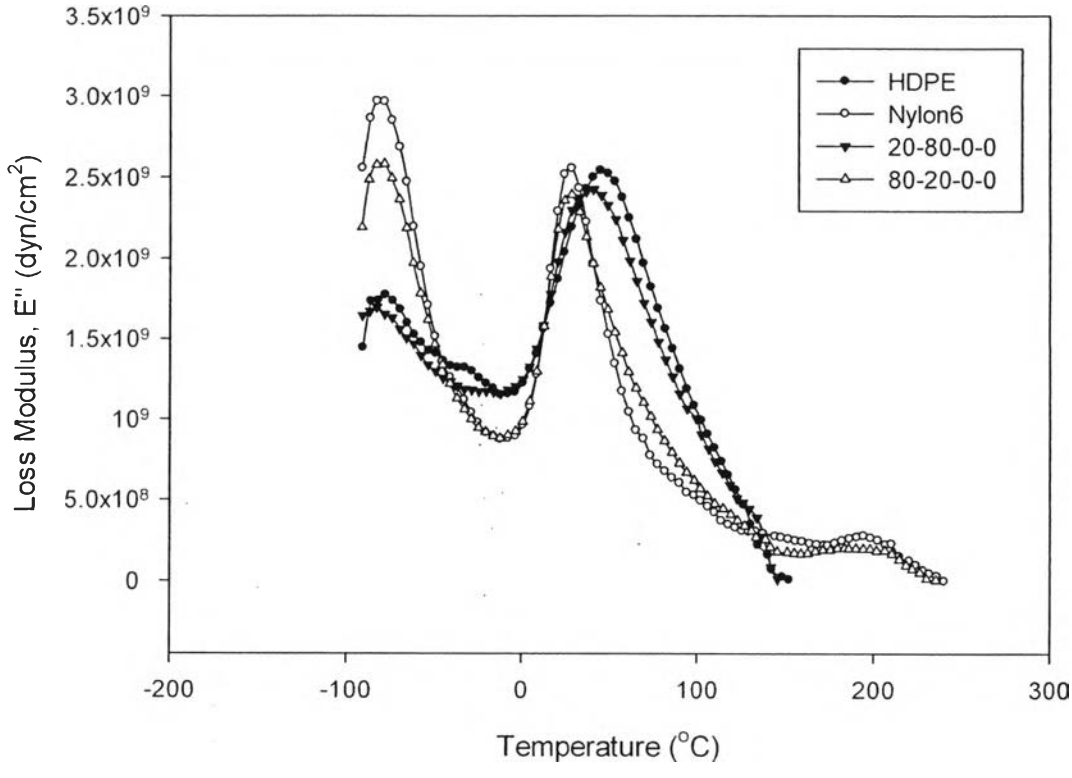

Figure C4 Temperature dependence of loss modulus (E'') of Nylon6/HDPE blend without compatibilizer

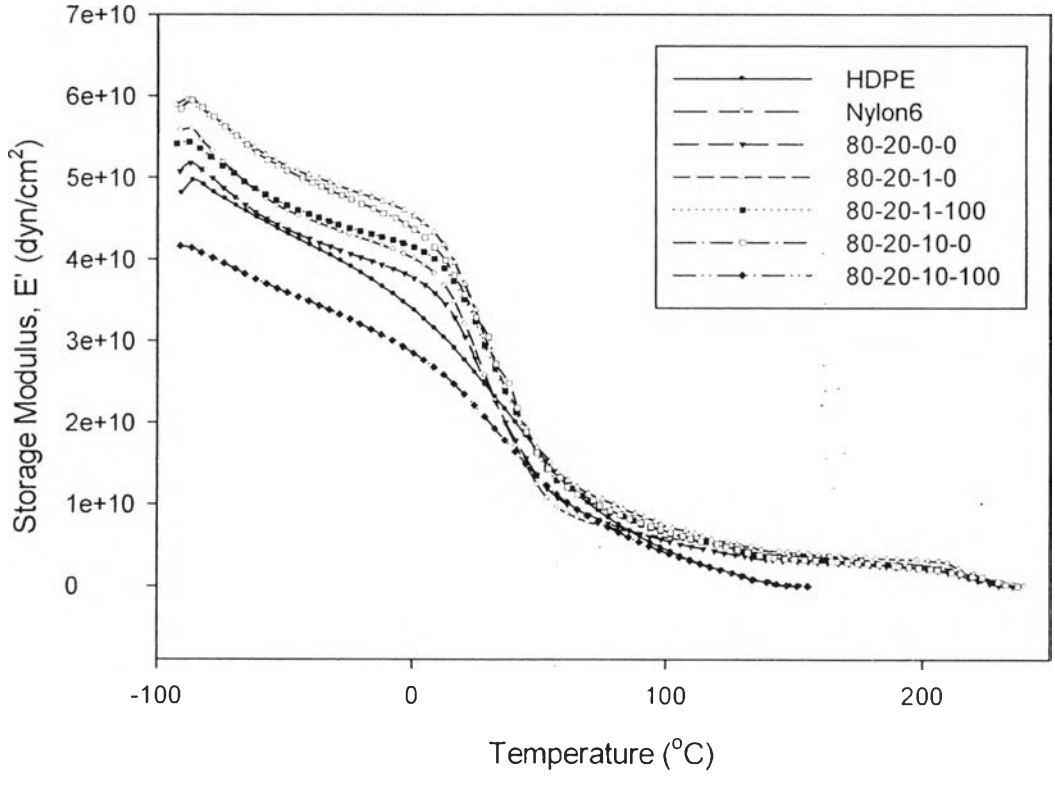

Figure C5 Temperature dependence of loss modulus (E'') of 80/20 Nylon6/HDPE blend with 1 and 10 phr of MAH-gHDPE and 100% zinc-neutralized MAH-gHDPE compatibilizer

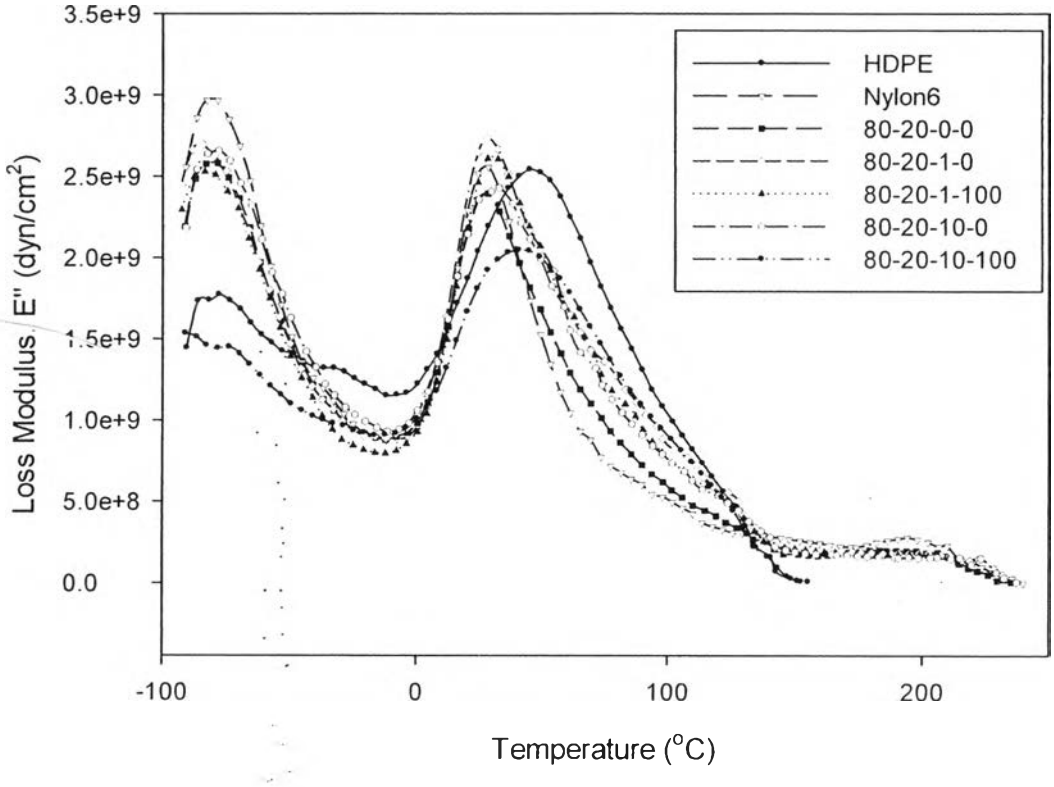

Figure C6 Temperature dependence of loss modulus (E'') of 80/20 Nylon6/HDPE blend with 1 and 10 phr of MAH-gHDPE and 100% zinc-neutralizaed MAH-gHDPE compatibilizer

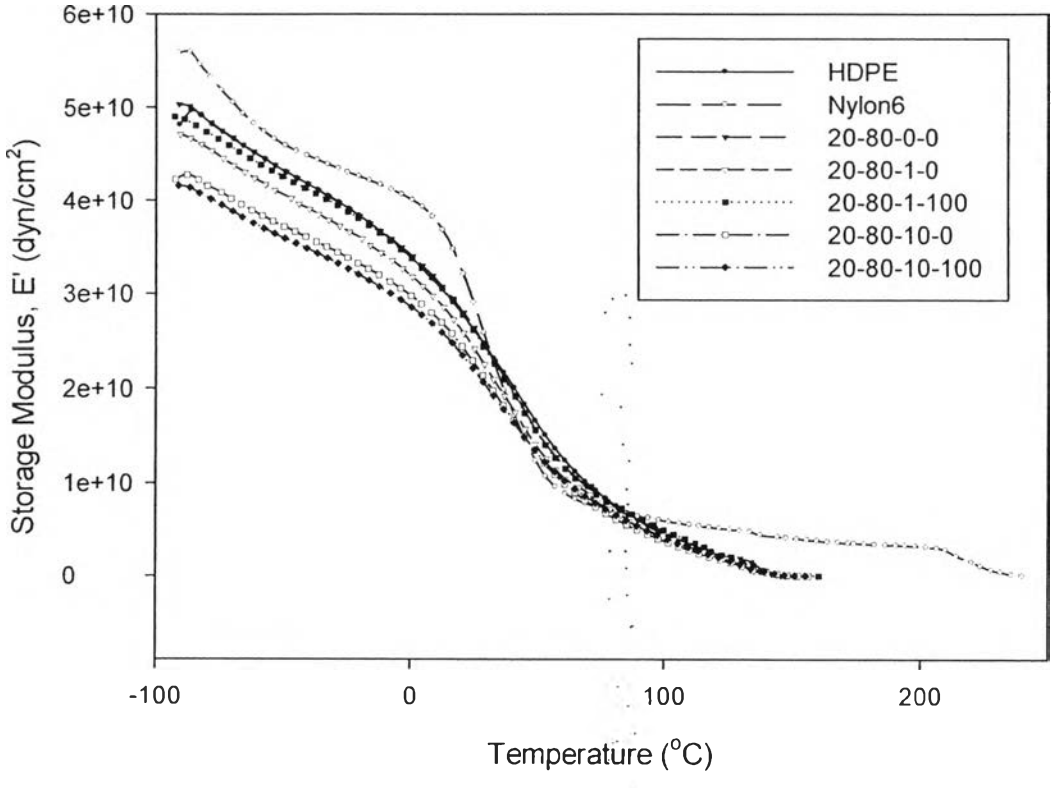

Figure C7 Temperature dependence of storage modulus (E'') of 20/80 Nylon6/HDPE blend with 1 and 10 phr of MAH-gHDPE and 100% zinc-neutralized MAH-gHDPE compatibilizer

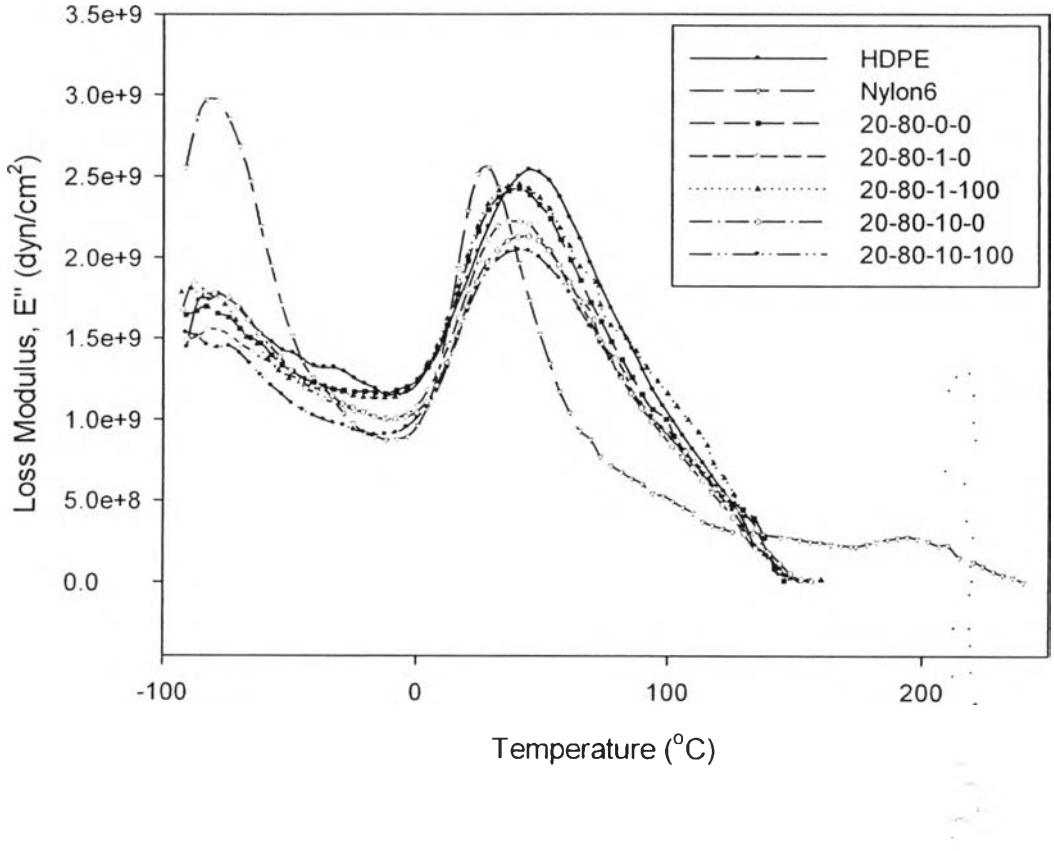

Figure C8 Temperature dependence of loss modulus (E'') of 20/80 Nylon6/HDPE blend with 1 and 10 phr of MAH-gHDPE and 100% zinc-neutralized MAH-gHDPE compatibilizer

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Proceedings:

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2. Charoenpongpool S., Nithitanakul M. and Brian P. G., (2009, March 24) Blends of Nylon 6/HDPE with Fusabond® Compatibilizer: Effect of zinc Neutralized Maleated Functional Groups. Proceeding of The 237th ACS National Meeting & Exposition, Salt lake Palace, Salt lake City, Utah, USA
3. Charoenpongpool S., Nithitanakul M., and Brian P. G., (2009 April 22) Zinc-Nuetralizaed Maleated HDPE as Compatibilizer For Nylon 6 and HDPE Blend. Proceeding of The 15th PPC Symposium on Petroleum, Petrochemicals, and Polymers, Sasa Patasala Bulding, Chulalongkorn University, Bangkok, Thailand

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1. Charoenpongpool S. and Shawaphun S., (2007, June 25) Preparation and mechanical properties of polylactic acid composites containing Hydroxyapatite nanocrystal. Paper presented at The 2nd International conference on "Advance in Petochemicals and Polymers" (ICAPP2007), Bangkok, Thailand

2. Charoenpongpool S., Nithitanakul M. and Brian P. G., (2009, March 24) Blends of Nylon 6/HDPE with Fusabond® Compatibilizer: Effect of zinc Neutralized Maleated Functional Groups. Paper presented at The 237th ACS National Meeting & Exposition, Salt lake Palace, Salt lake City, Utah, USA
3. Charoenpongpool S., Nithitanakul M., and Brian P. G., (2009 April 22) Zinc-Nuetralizaed Maleated HDPE as Compatibilizer For Nylon 6 and HDPE Blend. Paper presented at The 15th PPC Symposium on Petroleum, Petrochemicals, and Polymers, Sasa Patasala Bulding, Chulalongkorn University, Bangkok, Thailand