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APPENDICES

Table A1 Stress at break of PP and PP fiber modified with different amount of organoclay

Samples	Stress at break cN/tex	
	Average	SD
PP	1.5086	0.0004
6 phr Surlyn	1.2410	0.0007
15 phr PP-g-MAH	0.9835	0.0006
5 phr BTC/PP-g-MAH/PP	0.7894	0.0005
3 phr BTC/Sur/PP	0.9609	0.0003
5 phr BTC/Sur/PP	1.6162	0.0004
7 phr BTC/Sur/PP	1.2636	0.0007
3 phr DOEM/Sur/PP	0.9908	0.0003
5 phr DOEM/Sur/PP	1.4413	0.0004
7 phr DOEM/Sur/PP	1.3140	0.0007

Table A2 Stress at break of PP and organoclay-modified fibers with different draw ratio

Samples	Draw ratio	Stress at break cN/tex	
		Average	SD
5 phr BTC/Sur/PP	15.3	1.1064	0.0005
	25.6	1.2410	0.0007
	36.6	1.6206	0.0005
	47.6	1.7591	0.0006
5 phr DOEM/Sur/PP	15.3	0.9331	0.0010
	25.6	1.7687	0.0011
	36.6	1.7908	0.0016
	47.6	2.9029	0.0025

Table A3 Young's Modulus of PP and PP fiber modified with different amount of organoclay

Samples	Young's Modulus (Mpa)	
	Average	SD
PP	292.60	115.32
6 phr Surlyn	189.43	67.95
15 phr PP-g-MAH	461.40	180.49
5 phr BTC/PP-g-MAH/PP	804.80	443.15
3 phr BTC/Sur/PP	317.29	69.05
5 phr BTC/Sur/PP	401.14	127.87
7 phr BTC/Sur/PP	547.50	313.55
3 phr DOEM/Sur/PP	508.10	192.04
5 phr DOEM/Sur/PP	517.45	189.60
7 phr DOEM/Sur/PP	368.40	136.88

Table A4 Young's Modulus of PP and organoclay-modified fibers with different draw ratio

Samples	Draw ratio	Young's Modulus (Mpa)	
		Average	SD
5 phr BTC/Sur/PP	15.3	384.11	158.49
	25.6	401.14	127.87
	36.6	430.11	232.88
	47.6	864.25	424.56
5 phr DOEM/Sur/PP	15.3	245.30	113.07
	25.6	517.45	189.60
	36.6	437.80	169.73
	47.6	549.30	177.22

Table A5 % Strain at break of PP and PP fiber modified with different amount of organoclay

Samples	Strain at break (%)	
	Average	SD
PP	1718	241.00
6 phr Surlyn	2604.8	113.02
15 phr PP-g-MAH	2029	174.28
5 phr BTC/PP-g-MAH/PP	849.2	127.40
3 phr BTC/Sur/PP	1590.4	159.04
5 phr BTC/Sur/PP	1449.8	67.11
7 phr BTC/Sur/PP	1265.2	187.80
3 phr DOEM/Sur/PP	2083.2	254.88
5 phr DOEM/Sur/PP	1809.8	92.21
7 phr DOEM/Sur/PP	2320	176.76

Table A6 % Strain at break of PP and organoclay-modified fibers with different draw ratio

Samples	Draw ratio	Strain at break (%)	
		Average	SD
5 phr BTC/Sur/PP	15.3	548.8	80.13
	25.6	1449.8	67.11
	36.6	1371.0	23.69
	47.6	1463.6	91.75
5 phr DOEM/Sur/PP	15.3	2455.4	434.78
	25.6	2046.2	362.39
	36.6	1714.2	197.53
	47.6	1646.7	133.55

Table A7 % Dye exhaustion of polypropylene and organoclay/polypropylene nanocomposite fibers dyed with different types of dye

Sample	% Dye Exhaustion							
	Acid		Basic		Direct		Disperse	
	Average	SD	Average	SD	Average	SD	Average	SD
PP	5.51	2.72	3.36	4.25	103.61	1.91	31.68	2.03
6 phr Surlyn	12.05	3.17	3.15	0.60	96.89	3.76	31.74	9.46
15 phr PP-g-MAH	12.39	5.83	7.49	3.21	99.48	3.15	23.48	4.75
5 phr BTC/Surlyn/PP	26.20	3.83	0.55	0.33	104.80	1.12	40.23	7.40
5 phr DOEM/ Surlyn/PP	9.66	2.21	4.02	2.20	97.37	1.63	34.38	4.99
5 phr BTC/ PP-g-MAH/PP	8.48	0.29	0.64	0.15	98.40	1.85	38.77	3.33
5 phr DOEM/ PP-g-MAH/PP	9.44	0.15	1.25	1.49	98.04	1.91	29.60	2.38

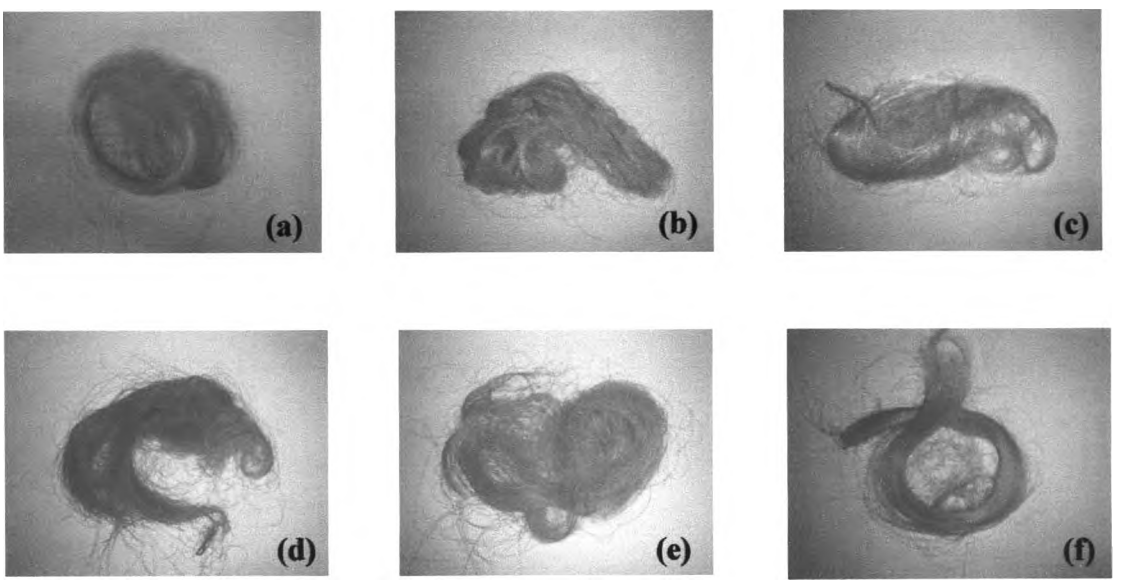

Figure 1A Polypropylene and organoclay/polypropylene nanocomposite fibers dyed with acid dye (a) PP (b) 6 phr Sutlyn/PP (c) 15 phr PP-g-MAH/PP (d) 5 phr BTC/Surlyn/PP (e) 5 phr DOEM/Surlyn/PP (f) 5 phr BTC/PP-g-MAH/PP

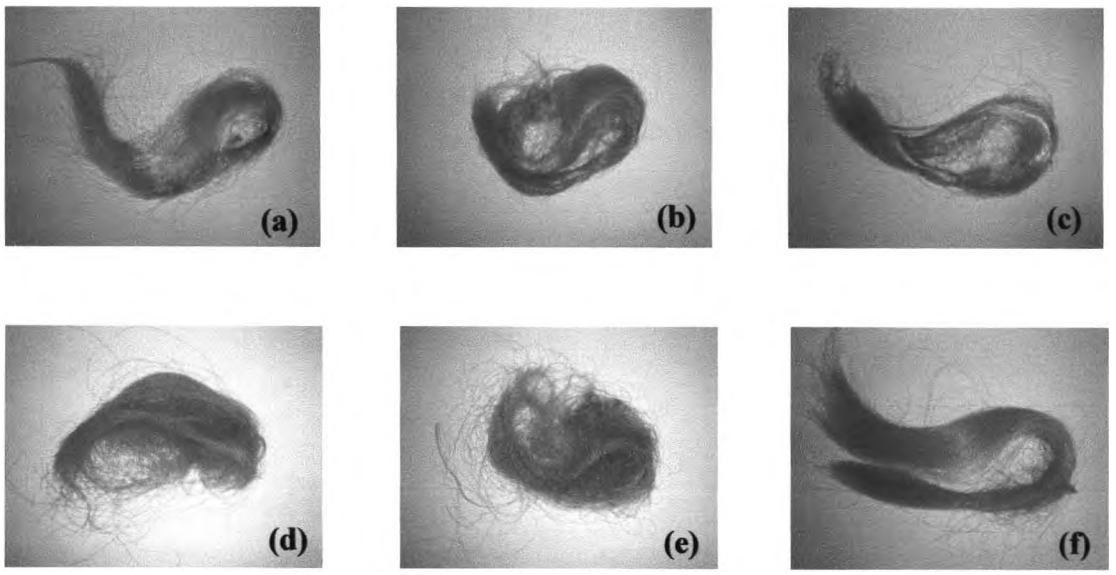

Figure 2A Polypropylene and organoclay/polypropylene nanocomposite fibers dyed with basic dye (a) PP (b) 6 phr Sutlyn/PP (c) 15 phr PP-g-MAH/PP (d) 5 phr BTC/Surlyn/PP (e) 5 phr DOEM/Surlyn/PP (f) 5 phr BTC/PP-g-MAH/PP

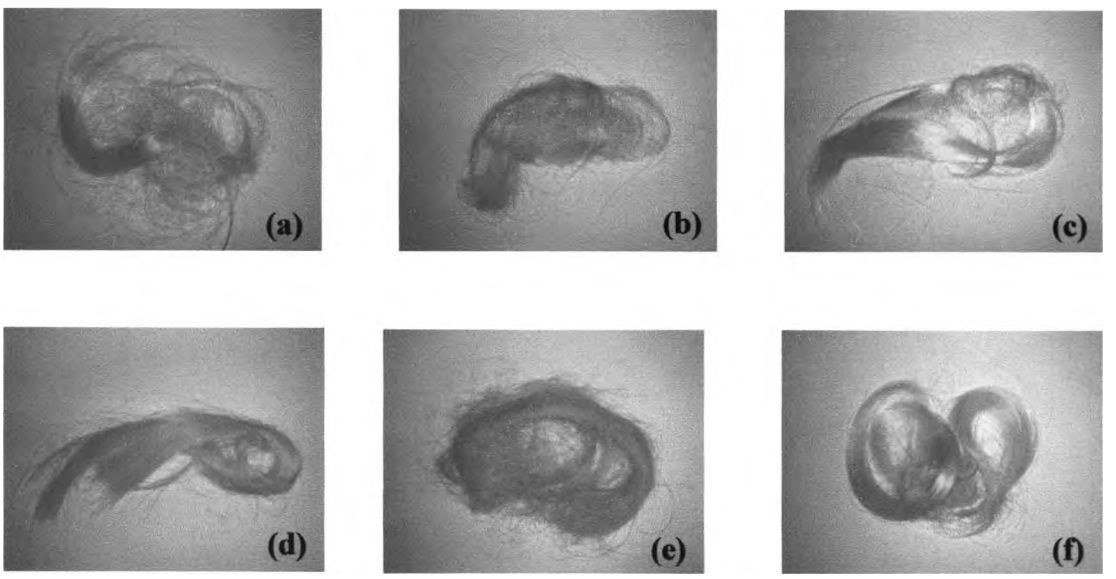

Figure 3A Polypropylene and organoclay/polypropylene nanocomposite fibers dyed with direct dye (a) PP (b) 6 phr Sutlyn/PP (c) 15 phr PP-g-MAH/PP (d) 5 phr BTC/Surlyn/PP (e) 5 phr DOEM/Surlyn/PP (f) 5 phr BTC/PP-g-MAH/PP

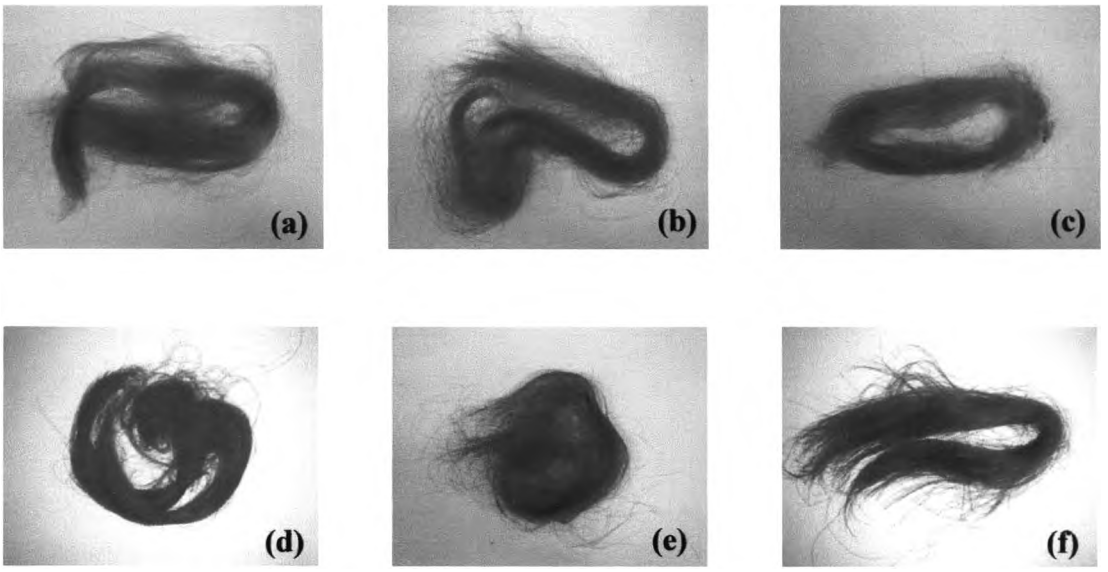

Figure 4A Polypropylene and organoclay/polypropylene nanocomposite fibers dyed with disperse dye (a) PP (b) 6 phr Sutlyn/PP (c) 15 phr PP-g-MAH/PP (d) 5 phr BTC/Surlyn/PP (e) 5 phr DOEM/Surlyn/PP (f) 5 phr BTC/PP-g-MAH/PP

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2. Aimampaiwong, N., Magaraphan, R., Nithitanakul, M., and Manuspiya, H. (2008, April 23) Nanoclay/Polypropylene Nanocomposite Dyed Fiber. Poster presented at The 14th PPC Symposium on Petroleum, Petrochemicals, and Polymers, Sasa Patasala Building, Chulalongkorn University, Bangkok, Thailand.

Proceedings:

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