REFERENCES

Akay, G., Birch, M.A. and Bokhari, M.A. (2004) Microcellular polyHIPE polymer supports osteoblast growth and bone formation in vitro. Biomaterials, 25, 3991–4000.

Alexander, B. M. and Joseph, D. H. (2003) Effect of organoclay Soxhlet extraction on mechanical properties, flammability properties and organoclay dispersion of polypropylene nanocomposites. Polymer, 44, 2313-2320.

Bae, Y.S., Moon, J.H., Ahn, H., and Lee, C.H. (2004) Effects of Adsorbate Properties on Adsorption Mechanism in a Carbon Molecular Sieve. Korean J. Chem. Eng., 21(3), 712-720.

Baker, S.C., Atkin, N., Gunning, P.A., Granville, N., Wilson, K., Wilson, D., and Southgate, J. (2006) Characterization of electrospun polystyrene scaffold for three-dimensional in vitro biological studies. Biomaterials, 27, 3136-3146.

Barbetta, A. and Cameron, N.R. (2004) Morphology and Surface Area of Emulsion-Derived (PolyHIPE) Solid Foams Prepared with Oil-Phase Soluble Porogenic Solvents: Span 80 as Surfactant. Macromolecules, 37, 3188-3201.

Barbetta, A. and Cameron, N.R. (2004) Morphology and Surface Area of Emulsion-Derived (PolyHIPE) Solid Foams Prepared with Oil-Phase Soluble Porogenic Solvents: Three-Component Surfactant System. Macromolecules, 37, 3202-3213.

Barby, D and Haq Z. (1982) Eur. Pat., 60138

Bhumgara, Z.G. (March 1995) Polyhipe Foam Materials as Filtration Media. Filtration & Separation, 245-251.

Bodzek, M. (2000) Membrane Techniques in Air Cleaning. Polish Journal of Environmental Studies, 9 (1), 1-12.

Borcia, G., Anderson, C.A., and Brown, N.M.D. (2003) Dielectric barrier discharge for surface treatment: application to selected polymers in film and fibre form. Plasma Sources Sci. Technol., 12, 335-344.

Burkett, S.L., Sims, S.D., and Mann, S. (1996) Synthesis of hybrid inorganic-organic mesopores silica by co-condensation of siloxane and organosiloxane precursors. Chem. Commun., 1367-1368.

Busby, W., Cameron, N.R. and Jahoda, C.A.B. (2001) Emulsion-Derived Foams (PolyHIPEs Containing Poly(ε-caprolactone) as Matrixes for Tissue Engineering. Biomacromolecules, 2, 154-164.

Cameron, N.R. (2005) High internal phase emulsion templating as a route to well-defined porous polymers. Polymer, 46, 1439–1449.

Cameron, N.R. and Barbetta, A. (2000) The influence of porogen type on the porosity, surface area and morphology of poly(divinylbenzene) PolyHIPE foams. J. Mater. Chem., 10, 2466-2471.

Cameron, N.R. and Sherrington, D.C. (1996) Adv. Pol. Sci., 126, 163.

Chan, C.M., and Ko, T.M. (1996) Polymer surface modification by plasmas and photons. Surface Science Reports, 24, 1-54.

Christenson, E.M., Soofi, W., Holm, J.L., Cameron, N.R., and Mikos, A.G. (2007) Biodegradable fumarate-based polyHIPEs as tissue engineering scaffolds. Biomacromolecules, 8, 3806-3814.

Delenze, H., Maillard, B. and Mondain-Monval, O. (2002) Development of a New Ultraporous Polymer as Support in Organic Synthesis. Bioorganic & Medicinal Chemistry Letters, 12, 1877-1880.

Diaz, E., Munoz, E.,Vega, A., and Ordonez, S. (2008) Enhancement of the CO_2 retention capacity of X zeolites by Na- and Cs-treatments. Chemosphere, 70, 1375-1382.

Ding, C., Jia, D., He, H., Guo, B., Hong, H. (2005) How organo-montmorillonite truly affects the structure and properties of polypropylene. Polymer Testing, 24, 94–100.

Edwards, S.L., Mitchell, W., Matthews, J.B., Ingham, E., and Russell, S.J. (2004) Design of nonwoven scaffold structures for tissue engineering of the anterior cruciate ligament. AUTEX Research Journal, 4, 86-94.

Elmes, A. R., Hammond, K. and Sherrington, D. C. (1988) Euro- pean Patent Application 88, 303 675.8.

Fang, Z., Qiu, Y., Zhang, C., and Kuffel, E., (2007) Factors influencing the existence of the homogeneous dielectric barrier discharge in air at atmospheric pressure. Journal of Physics D: Applied Physics, 40, 1401-1407.

Fornes, T.D., Hunter D.L. and Paul, D.R. (2004) Nylon-6 Nanocomposites from Alkylammonium-Modified Clay: The Role of Alkyl Tails on Exfoliation. Macromolecules, 37, 1793-1798.

Fridman, A.A., and Kennedy, L.A., 'Plasma Physics and Engineering', Taylor & Francis Publisher, 2004

Galarneau, A., Barodawalla, A., and Pinnavaia, T.J. (1995) Porous clay hetero structures formed by gallery-templated synthesis. Nature, 374, 529-531.

Gibson, S.L., Bencherif, S., Antonucci J.M., Jones, R.L., and Horkay F. (2005) Synthesis and characterization of poly(ethylene glycol) dimethacrylate hydrogels. Macromol. Symp, 227, 243-254.

Gregg, S.J. and Sing, K.S.W. Adsorption, Surface area and porosity. Academic Press INC (London) LTD, 1982.

Haibach, K., Menner, A., Powell, R. and Bismarck, A. (2006) Tailoring mechanical properties of highly porous polymer foams: Silica particle reinforced polymer foams via emulsion templating. Polymer, 47, 4513-4519.

Hainey, P., Huxham, I.M., Rowatt, B., Sherrington, D.C. and Tetley, L. (1991) Synthesis and Ultrastructural Studies, of Styrene-Divinylbenzene Polyhipe Polymers. Macromolecule, 24, 117-121.

Hayman, M.W., Smith, K.H., Cameron, N.R. and Przyborski, S.A. (2005) Growth of human stem cell-derived neurons on solid three-dimensional polymers. J. Biochem. Biophys. Methods, 62, 231-240.

Jin, J.M., Lee, J.M., Ha, M.H., Lee, K., and Choe, S. (2007) Highly crosslinked poly(glycidyl methacrylate-co-divinyl benzene) particles by precipitation polymerization. Polymer, 48, 3107-3115.

Jo, C. and Naguib, H. E. (2007) Effect of Nanoclay and Foaming Conditions on the Mechanical Properties of HDPE-Clay Nanocomposite Foams. Journal of cellular plastic, 43, 111-121.

Kapoor, A., Yang, R.T. (1989) Kinetic separation of methane-carbon dioxide mixture by adsorption on molecular sieve carbon. Chemical Engineering Science, 44, 1723-1733.

Kooli, F., Hian, P.C., Weirong, Q., Alshahateet, S.F., and Chen, F. (2006) Effect of the acid-activated clays on the properties of porous clay heterostructures. J porous Mater, 13, 319-324.

Krajnca, P., Lebera, N., Stefaneca, D., Kontrecb, S. and Podgornik, A. (2005) Preparation and characterisation of poly(high internal phase emulsion) methacrylate monoliths and their application as separation media. Journal of Chromatography A, 1065, 69–73.

Lee, H.U., Jeong, Y.S., Jeong, S.Y., Park, S.Y., Bae, J.S., Kim, H.G., and Cho, Ch.R. (2008) Role of reactive gas in atmospheric plasma for cell attachment and proliferation on biocompatible poly [var epsilon]-caprolactone film. Applied Surface Science, 254, 5700-5705.

Lo, H., Ponticiello, M.S., and Leong, K.W. (1995) Fabrication of controlled release biodegradable foams by phase separation. Tissue Engineering, 1, 5-28.

Menner, A., Powell, R. and Bismarck, A. (2006) A new route to carbon black filled polyHIPEs. Soft matter, 2, 337-342.

Mikos, A.G., Bao, Y., Cima, L.G., Ingber, D.E., Vacanti, J.P., and Langer, R. (1993a). Preparation of Poly(glycolic acid) bonded fiber structures for cell attachment and transplantation. Journal of Biomedical Materials Research, 27, 183-189.

Mikos, A.G., Sarakinos, G., Leite, S.M., Vacanti, J.P., and Langer, R. (1993b). Laminated three-dimensional biodegradable foams for use in tissue engineering. Biomaterials, 14, 323-330.

Mikos, A.G., Thorsen, A.J., Czerwonka, L.A., Bao, Y., Langer, R., Winslow, D.N., and Vacanti, J.P. (1994). Preparation and characterization of poly(L-lactic acid) foams. Polymer, 35, 1068-1077.

Mills, G.A., Holmes, J., and Cornelius, E.B. (1950) Acid activated of some bentonite clays. Journal of Physical and Colloid Chemistry, 54, 1170-1180.

Modesti, M., Lorenzetti, A., Bon, D., and Besco, S. (2006) Thermal behaviour of compatibilised polypropylene nanocomposite: Effect of processing conditions. Polymer Degradation and Stability, 91, 672-680.

Mooney, D.J., Baldwin, D.F., Suh, N.P., Vacanti, J.P., and Langer, R. (1996a). Novel approach to fabricate porous sponges of poly(D,L-lactic-co-glycolic acid) without the use of organic solvents. Biomaterials, 17, 1417-1422.

Pakeyangkoon, P., Magaraphan, R., Malakul, P., and Nithitanakul, M. (2009) Journal of Applied Polymer Science, Accepted.

Parija, S., Nayak, S.K., Verma, S.K. and Tripathy, S.S. (2004) Studies on physico-mechanical properties and thermal characteristics of polypropylene/layered silicate nanocomposites. Polymer Composites, 25, 646-652.

Pinto, M.L., Pires, J., Carvalho, A.P., Carvalho, M.B., and Bordado, J.C. (2005) Characterization of adsorbent materials supported on polyurethane foams by nitrogen and toluene adsorption. Micropor. Mesopor. Mater., 80, 253-262.

Pires, J., Araujo, A.C., Carvalho, A.P., Pinto, M.L., Gonzalez-Calbet, J.M., and Ramirez-Castellanos, J. (2004) Porous materials from clays by the gallery template approach: synthesis, characterization and adsorption properties. Micropor. Mesopor. Mater., 73, 175-180.

Polverejan, M., Liu, Y. and Pinnavaia, T.J. (2002) Aluminated derivatives of porous clay heterostructures (PCH) assembled from synthetic saponite clay: properties as supermicroporous to small mesoporous acid catalysts. Chem. Mater., 14, 2283-2288.

Prakobna, K., Magaraphan, R. and Manuspiya, H. (2006) Modification of porous clay heterostructures (PCHs) and hybrid organic-inorganic PCHs (HPCHs) for ethylene entrapping system. Thesis Submitted for the Degree of Master of Science, The Petroleum and Petrochemical College, Chulalongkorn University

Rajesh, D., and Mark, J.K., (2003) A model for plasma modification of polypropylene using atmospheric pressure discharges. Journal of Physics D: Applied Physics, 36, 666-685.

Ryu, G.H., Yang, W.S., Roh, H.W., Lee, I.S., Kim, J.K., Lee, G.H., Lee, D.H., Park, B.J., Lee, M.S., and Park, J.C. (2005) Plasma surface modification of poly(D,L-lactic-co-glycolic acid) (65/35) film for tissue engineering. Surface & Coatings Technology, 193, 60-64.

Safinia, L., Datan, N., Hohes, M., Mantalaris A., and Bismarck, A. (2005) Towards a methodology for the effective surface modification of porous polymer scaffolds. Biomaterials, 26, 7537-7547.

Safinia, L., Wilson, K., Mantalaris, A., and Bismarck, A. (2007) Atmospheric plasma treatment of porous polymer for tissue engineering applications. Macromolecular Bioscience, 7, 315-327.

Sergienko, A. Y., Tai, H., Narkis, M. and Silverstein, M. S. (2002) Journal of Applied Polymer Science, 84, 2018.

Shim, S.E., Yang, S., Jung, H., and Choe, S. (2004) Thermally Robust Highly Crosslinked Poly(methyl methacrylate-co-divinyl benzene) Microspheres by Precipitation Polymerization. Macromolecular research, 12 (2), 233-239.

Srinath, G. and Gnanamoorthy, R. (2005) Effect of nanoclay reinforcement on tensile and tribo behavior of Nylon 6. J. of materials science, 40, 2897-2901.

Stein, A., Melde, B.J., and Schroden, R.C. (2000) Hybrid organic-inorganic mesoporous silicates-nanoscropic reactors coming of age. Adv. Mater., 12, 1403-1419.

Tasanatanachai, P., and Magaraphan, R. (2008) Reactive Processing of Linear Low Density Polyethylene Modified by Chemical and Plasma-Assisted Processes. Thesis Submitted for the Degree of Doctor of Philosophy, The Petroleum and Petrochemical College, Chulalongkorn University.

Venaruzzo, J.L., Volzone, C., Rueda, M.L., and Ortiga, J. (2002) Modified bentonite clay minerals for CO, CO_2 and SO_2 adsorption. Microporous and Mesoporous Materials, 56, 73-80.

Volzone, C. (2007) Retention of pollutant gases: Comparison between clay minerals and their modified produts. Applied Clay Science, 36, 191-196.

Volzone, C., and Ortiga, J. (2000) Retention gas O_2, CH_4 and CO_2 by acid smectites with and without thermal treatment. Journal materials Science, 35, 5291-5294.

Volzone, C., and Ortiga, J. (2006) Retention of gases by hexadecyltrimethylammonium-montmorillonite clays. Journal of Environmental Management, 79, 247-252.

Volzone, C., Rinaldi, J.O., and Ortiga, J. (2002) N_2 and CO_2 adsorption by TMA-and HDP-montmorillonite. Materials Research, 5 (4), 475-479.

Wakeman, R.J., Bhumgara, Z.G. and Akay, G. (1998) Ion exchange modules formed from polyHIPE foam precursors. Chemical Engineering Journal, 70, 133-141.

Walther, A., Bernhardt, A., Pompe, W., Gelinsky, M., Mrozik, B., Hoffmann, G., Cherif, C., Bertram, H., Richter, W., and Schmack, G. (2007) Development of novel scaffolds for tissue engineering by flock technology. Textile Research Journal, 77 (11), 892-899.

Wei, L., Tang, T., and Huang, B. (2004) Novel acidic porous clay heterostructure with highly ordered organic–inorganic hybrid structure: one-pot synthesis of mesoporous organosilica in the galleries of clay. Microporous and Mesoporous Materials., 67 ,175–179.

Whang, K., Thomas, C.H., Healy, K.E., and Nuber, G. (1995). A novel method to fabricate bioabsorbable scaffolds. Polymer, 36, 837-842

Williams, J. M. (1991) High Internal Phase Water-in-Oil Emulsions: Influence of Surfactants and Cosurfactants on Emulsion Stability and Foam Quality. Langmuir, 7, 1370-1377.

Williams, J. M., Gray, A. J. and Wilkerson, M. H. (1990) Emulsion Stability and Rigid Foams from Styrene or Divinylbenzene Water-in- Oil Emulsions. Langmuir, 6, 437-444.

Williams, J.M. and Wrobleski, D.A. (1988) Spatial Distribution of the Phases in Water-in-Oil Emulsions. Open and Closed Microcellular Foams from Cross-Linked Polystyrene. Langmuir, 4, 656-662.

Yang, R.T. Gas separation of adsorption processes; Butterworth Publisher, Boston, 1987.

Zhang, H and Cooper, A.I. (2005) Synthesis and applications of emulsion-templated porous materials. Soft Matter, 1, 107–113.

APPENDICES

Appendix A Experimental Data

Table A1 N_2 adsorption-desorption isotherm of poly(DVB)polyHIPE with using S20M and S80M as three-component surfactant.

S20M_T		**S80M_T**	
P/P_0	**V (cc/g)**	**P/P_0**	**V (cc/g)**
0.049594	122.317	0.048834	113.3776
0.073793	133.8569	0.075515	124.6352
0.100880	143.8841	0.09767	132.4611
0.149200	157.9129	0.15067	146.9854
0.200210	170.8542	0.20192	159.2287
0.251760	182.1193	0.24795	168.8354
0.297660	191.3913	0.29838	178.5529
0.397550	211.3762	0.400850	197.0345
0.497190	230.6616	0.498970	216.2893
0.598620	253.4518	0.600510	236.7164
0.701230	280.724	0.701010	263.1743
0.802730	319.6824	0.797580	297.2375
0.899430	384.4253	0.898280	370.0632
0.987760	477.7845	0.987520	514.7701
0.994040	485.9452	0.995730	528.5555
0.895530	428.0095	0.900810	443.5211
0.797080	369.8166	0.802670	329.6839
0.699200	310.741	0.702730	281.8506
0.600420	278.2287	0.601730	252.8027
0.496610	250.1115	0.496670	229.8889
0.397900	221.9187	0.398370	206.0134
0.295750	201.4178	0.298950	187.7165
0.199530	180.5249	0.202400	168.4088
0.098026	152.5491	0.100490	142.6985

Table A2 Multipoint BET surface area of poly(DVB)polyHIPE using S20M as surfactant with various Soxhlet extraction time.

48h		24h		12h		6h	
P/P_0	Volume(cc/g)	P/P_0	Volume(cc/g)	P/P_0	Volume(cc/g)	P/P_0	Volume(cc/g)
0.051121	112.54	0.049671	113.94	0.052139	118.74	0.050014	118.95
0.074885	122.65	0.074017	124.58	0.076418	129.2	0.073869	130.37
0.10177	131.56	0.10146	133.71	0.098449	137.16	0.10043	140.66
0.14952	144.45	0.14966	146.65	0.15057	151.52	0.14879	154.94
0.20181	155.93	0.20211	157.93	0.20392	163.68	0.20079	167.81
0.25300	166.88	0.25409	168.5	0.24834	173.18	0.25275	179.91
0.29861	175.16	0.29977	176.43	0.29948	182.78	0.29724	189.17

3h		1h		0h	
P/P_0	Volume(cc/g)	P/P_0	Volume(cc/g)	P/P_0	Volume(cc/g)
0.048926	90.4403	0.050036	49.6569	0.050758	40.3787
0.074144	99.8887	0.075472	55.4861	0.074922	45.6353
0.10167	107.6376	0.10174	60.7519	0.10147	50.3193
0.14896	118.7187	0.15047	67.6033	0.14856	57.1659
0.20251	128.2397	0.20149	74.2708	0.2	63.6045
0.24855	135.5099	0.25412	79.8579	0.25021	69.9576
0.30464	144.6502	0.30364	85.4036	0.30271	75.4271

Table A3 Multipoint BET surface area of poly(DVB)polyHIPE using S80M as surfactant with various Soxhlet extraction time.

48h		24h		12h		6h	
P/P_0	Volume(cc/g)	P/P_0	Volume(cc/g)	P/P_0	Volume(cc/g)	P/P_0	Volume(cc/g)
0.048834	113.3776	0.053284	113.5388	0.053168	102.8417	0.049047	99.4132
0.075515	124.6352	0.076506	123.7875	0.076472	111.8364	0.075595	111.8919
0.09767	132.4611	0.098924	131.6326	0.09895	118.7505	0.099218	120.5764
0.15067	146.9854	0.15073	146.5541	0.14927	131.6564	0.15064	135.7388
0.20192	159.2287	0.20278	159.0125	0.20393	142.5973	0.19717	147.8033
0.24795	168.8354	0.2489	168.6968	0.24978	150.5398	0.24816	159.103
0.29838	178.5529	0.298757	179.1107	0.29835	159.2254	0.29883	170.8033

3h		1h		0h	
P/P_0	Volume(cc/g)	P/P_0	Volume(cc/g)	P/P_0	Volume(cc/g)
0.050552	40.5138	0.047819	29.0934	0.052279	46.1305
0.076901	46.5213	0.07031	34.0743	0.073795	51.3687
0.10106	52.497	0.09745	37.0703	0.099928	56.5348
0.15208	59.6497	0.15147	43.4694	0.15324	65.3206
0.20166	66.786	0.20364	49.0393	0.1987	71.7209
0.25575	73.2057	0.2528	54.5176	0.24963	78.1496
0.29829	77.8777	0.30499	59.4981	0.2995	84.8929

Table A4 Chemical compositions of clay with untreated and treated with acid treatment from XRF. (Oct:cations in octahedral position: Al, Mg, Fe and Ti).

Sample	SiO_2 %	Al_2O_3 %	MgO %	Fe_2O_3 %	TiO_2 %	Si/Al Molar	Si/Mg molar	Si/oct molar
Bentonite	77.776	9.938	1.023	2.197	0.367	6.9	59.2	4.957
Treated Bentonite	87.962	5.639	0.421	0.985	0.4	18.08	162.3	10.063
Untreated MOD_DOAM	80.505	10.266	1.043	2.301	0.391	6.914	60.033	4.955
Treated MOD_DOAM	87.972	7.172	0.515	1.206	0.432	10.816	121.58	8.639

Table A5 CO_2 gas adsorption capacity (mol/g) of poly(DVB)polyHIPE using S80 as surfactant and filled with different type of organoclay.

Sample name	Adsorption (mol/g)	BET (m^2/g)
Without organoclay	0.00295	132.1
S80_MOD	0.0046	219.1
S80_HPCH	0.0048	260.0
S80_AC-MOD	0.0067	269.2

Table A6 UV-Absorbance of poly(S/EGDMA)polyHIPE with and without plasma treatment at wavelength 570 nm.

Effect of plasma treatment				Absorbance (570 nm)
Name	**Untreated**	1		0.1870
		2		0.1980
		3		0.1530
		Total	N	3
			Mean	0.1793
			STD.	0.0234
	Treated	1		0.4040
		2		0.3360
		3		0.4040
		Total	N	3
			Mean	0.3813
			STD.	0.0392

Table A7 UV-Absorbance of poly(S/EGDMA)polyHIPE with various plasma treatment time at wavelength 570 nm.

Effect of treatment time on cell attachment				Absorbance (570 nm)
Name	**Untreated**	1		0.1870
		2		0.1980
		3		0.1530
	Total		N	3
			Mean	0.1793
			STD.	0.0234
	5 min	1		0.2000
		2		0.2050
		3		0.1920
	Total		N	3
			Mean	0.1990
			STD.	0.0065
	10 min	1		0.2130
		2		0.2230
		3		0.2100
	Total		N	3
			Mean	0.2153
			STD.	0.0068
	15 min	1		0.2420
		2		0.2700
		3		0.2450
	Total		N	3
			Mean	0.2523
			STD.	0.0153
	20 min	1		0.2600
		2		0.2760
		3		0.2700
	Total		N	3
			Mean	0.2686
			STD.	0.0080
	30 min	1		0.4000
		2		0.4040
		3		0.3360
	Total		N	3
			Mean	0.3800
			STD.	0.0381

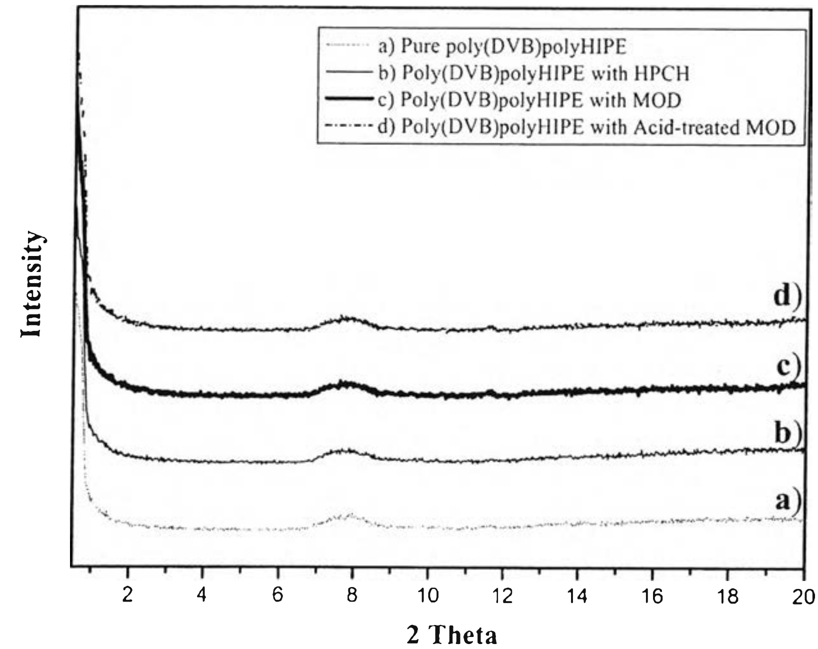
Table A8 UV-Absorbance of poly(S/EGDMA)polyHIPE with and without plasma treatment for cell attachment study (i.e. 1h, 4h, and 24h) at wavelength 570 nm.

Effect of plasma treatment on cell attachment					TIME 1h	TIME 4h	TIME 24h
Name	Untreated		1		0.1480	0.1380	0.2940
			2		0.1340	0.1520	0.2800
			3		0.1280	0.1330	0.2800
		Total		N	3	3	3
				Mean	0.1366	0.1410	0.2846
				STD.	0.0102	0.0098	0.0080
	Treated		1		0.1840	0.2420	0.5300
			2		0.1930	0.2560	0.5500
			3		0.1870	0.3050	0.5350
		Total		N	3	3	3
				Mean	0.1880	0.2676	0.5383
				STD.	0.0045	0.0330	0.0104
	Total		N		6	6	6
			Mean		0.1623	0.2043	0.4115
			STD.		0.0290	0.0727	0.1391

Table A9 UV-Absorbance of poly(S/EGDMA)polyHIPE with and without plasma treatment for cell proliferation study (i.e. 4h, 1 day, 3 day, and 7 day) at wavelength 570 nm.

Effect of plasma treatment on cell proliferation				**TIME 4h**	**TIME 1day**	**TIME 3day**	**TIME 7day**
Name	**Untreated**	1		0.1260	0.1870	0.3900	0.3220
		2		0.1340	0.1980	0.3680	0.3420
		3		0.1280	0.2110	0.3960	0.3400
		Total	N	3	3	3	3
			Mean	0.1293	0.1986	0.3846	0.3346
			STD.	0.0041	0.0120	0.0147	0.0110
	Treated	1		0.1840	0.3210	0.3870	0.3650
		2		0.1930	0.3220	0.4040	0.3550
		3		0.1870	0.3150	0.4500	0.3700
		Total	N	3	3	3	3
			Mean	0.1880	0.3193	0.4136	0.3633
			STD.	0.0045	0.0037	0.0325	0.0076
	Total	N		6	6	6	6
		Mean		0.1586	0.2590	0.3991	0.3490
		STD.		0.0323	0.0665	0.0276	0.0178

Appendix B XRD Spectra of poly(DVB)polyHIPE with and without organoclay.



Appendix C TPD pulse titration curve of CO_2 adsorption by polyHIPE.

Figure C1 TPD pulse titration curve of CO_2 adsorption by pure poly(DVB)polyHIPE.

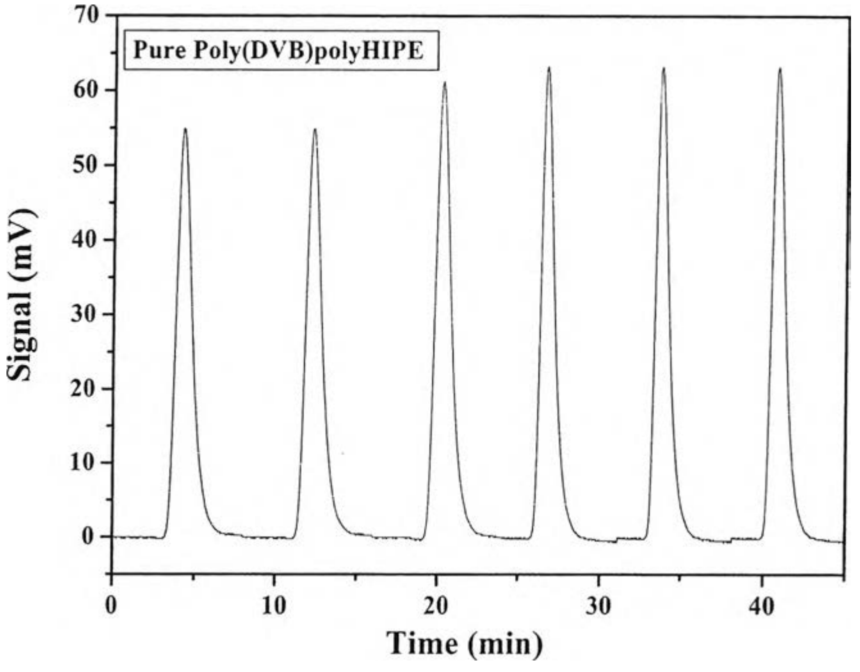


Figure C2 TPD pulse titration curve of CO_2 adsorption by poly(DVB)polyHIPE filled with MOD.

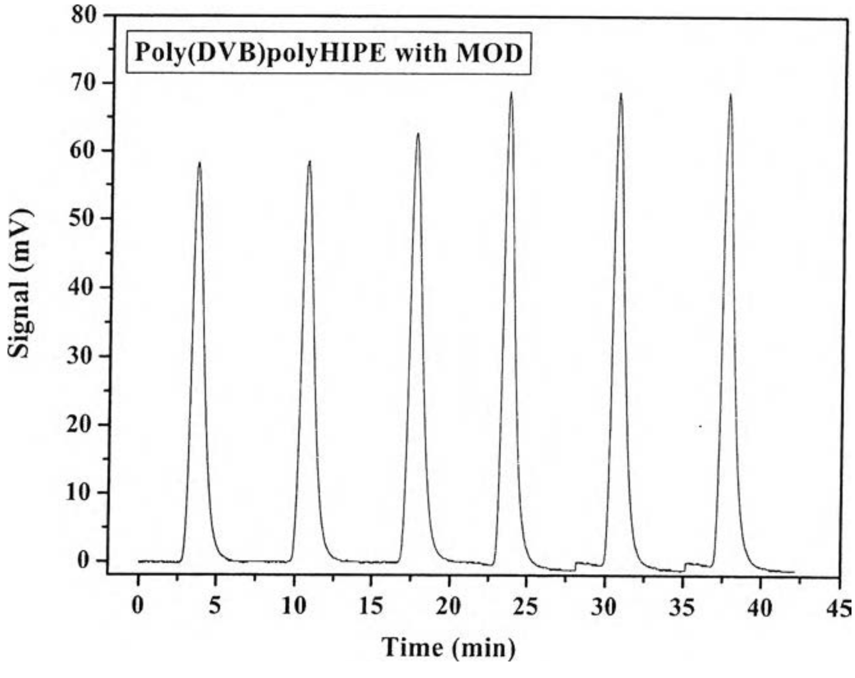


Figure C3 TPD pulse titration curve of CO_2 adsorption by poly(DVB)polyHIPE filled with HPCH.

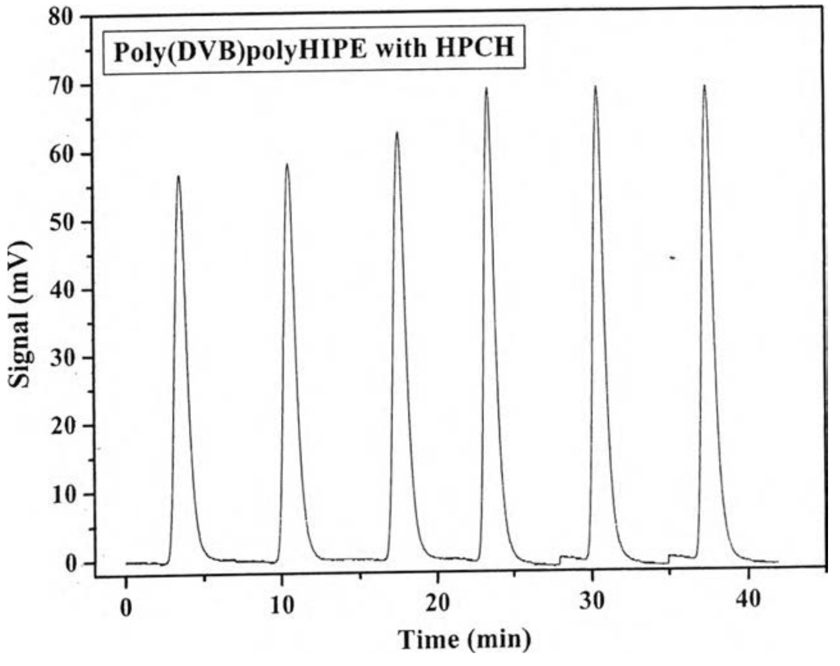
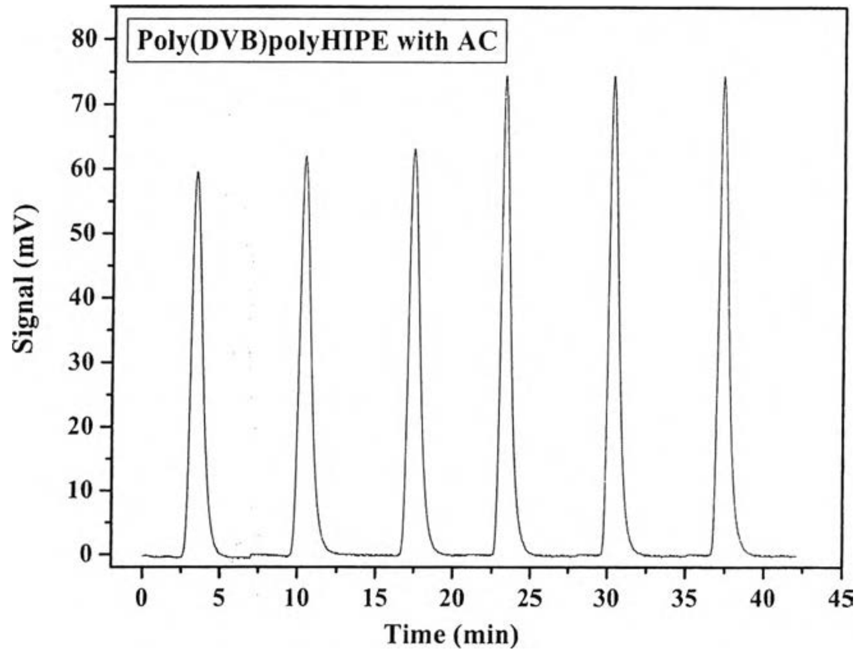


Figure C4 TPD pulse titration curve of CO_2 adsorption by poly(DVB)polyHIPE filled with AC-MOD.



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Publications:

1. Pakeyangkoon, P., Magaraphan, R., Malakul, P., and Nithitanakul, M. (2008) "Effect of Soxhlet Extraction and Surfactant System on Morphology and Properties of Poly(DVB)PolyHIPE" Macromolecular Symposia, 264(1), 149-156.
2. Pakeyangkoon, P., Magaraphan, R., Malakul, P., and Nithitanakul, M. (2008) "High Internal Phase Emulsion Foams (HIPE) filled with Organo-bentonite: Hybrid organic-inorganic porous clay heterostructures (HPCH) versus organo-modified bentonite (MOD)" Advances in Science and Technology, 54, 293-298.
3. Pakeyangkoon, P., Magaraphan, R., Malakul, P., and Nithitanakul, M. (2009) "Polymeric Foam via Polymerized High Internal Phase Emulsion (HIPE) filled with Organo-Modified Bentonite" Journal of Applied Polymer Science, Accepted.
4. Pakeyangkoon, P., Magaraphan, R., Malakul, P., and Nithitanakul, M. "Highly Porous Materials via Polymerized High Internal Phase Emulsion filled with Organo-Bentonite: synthesis, characterization and CO_2 adsorption" Journal of Applied Polymer Science, Submitted.

5. Pakeyangkoon, P., Magaraphan, R., Malakul, P., and Nithitanakul, M. "Surface modification of high internal phase emulsion foam as a scaffold for tissue engineering applications via atmospheric pressure plasma treatment" Surface and Coating Technology, Submitted.

Proceedings:

1. Pakeyangkoon, P., Nithitanakul, M., and Grady, B.P. (2005) "Blends of Low-density Polyethylene with Nylon6 Compatibilized with Sodium-neutralized Carboxylate Ionomers: Phase Morphology and Mechanical Properties" Proceedings of the 7th World Congress of Chemical Engineering (Glasgow 2005), Glasgow, Scotland.
2. Pakeyangkoon, P., Magaraphan, R., Malakul, P., and Nithitanakul, M. (2007) "Organo-Modified Bentonite filled with High Internal Phase Emulsion Foam with Improved Thermal and Mechanical properties" Proceeding of The 5th Eco-Energy and Materials Science and Engineering Symposium (5^{th} EMSES), 21-24 november 2007, Pattaya, Thailand.

Presentations:

1. Pakeyangkoon, P., Magaraphan, R., Malakul, P., and Nithitanakul, M. (2006) "Effect of Porogenic Solvent and Surfactant System on Morphology and Properties of Poly(divinylbenzene)PolyHIPE" Poster presentation at The IUPAC International Symposium on Advance Polymers for Emerging Technologies (2006 PSK Annual Fall Scientific Meeting), Busan, Korea.
2. Pakeyangkoon, P., Magaraphan, R., Malakul, P., and Nithitanakul, M. (2007) "Effect of Soxhlet extraction on Phase Morphology and Properties of Poly(DVB)PolyHIPE" Poster presentation at The 2007 American Physical Society (APS) March Meeting, March 5-9, 2007 Denver, Colorado, USA.

3. Pakeyangkoon, P., Magaraphan, R., Malakul, P., and Nithitanakul, M. (2007) "Effect of Soxhlet Extraction and Surfactant System on Morphology and Properties of Poly(DVB)PolyHIPE" Poster presentation at The 2nd International Conference on Advances in Petrochemicals and Polymers (ICAPP 2007), Bangkok, Thailand.
4. Pakeyangkoon, P., Magaraphan, R., Malakul, P., and Nithitanakul, M. (2007) "Organo-Modified Bentonite filled with High Internal Phase Emulsion Foam with Improved Thermal and Mechanical properties" Oral presentation at The 5th Eco-Energy and Materials Science and Engineering Symposium (5th EMSES), 21-24 November 2007, Pattaya, Thailand.
5. Pakeyangkoon, P., Magaraphan, R., Malakul, P., and Nithitanakul, M. (2008) "High Internal Phase Emulsion Foams (HIPE) filled with Organo-bentonite: Hybrid organic-inorganic porous clay heterostructures (HPCH) versus organo-modified bentonite (MOD)" Oral presentation at The 3rd International Conference "Smart Materials, Structures and Systems", Sicily, Italy.