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APPENDICES

Appendix A Types of Adsorption Isotherm and Hysteresis Loop

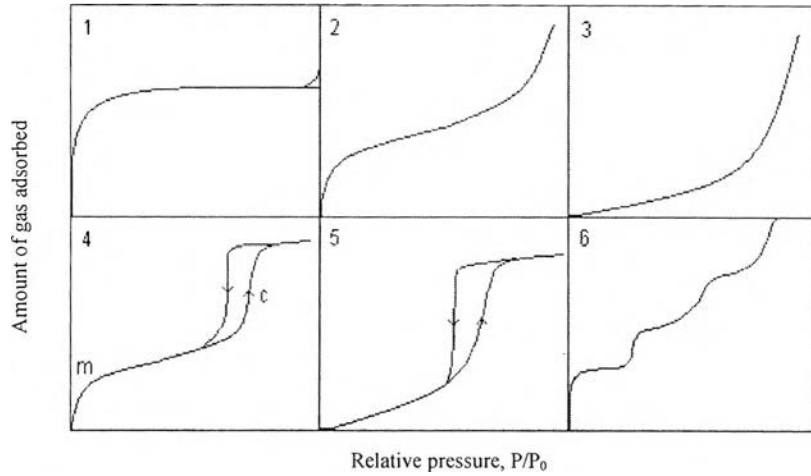


Figure A1 Types of adsorption isotherm according to BDDT classification.

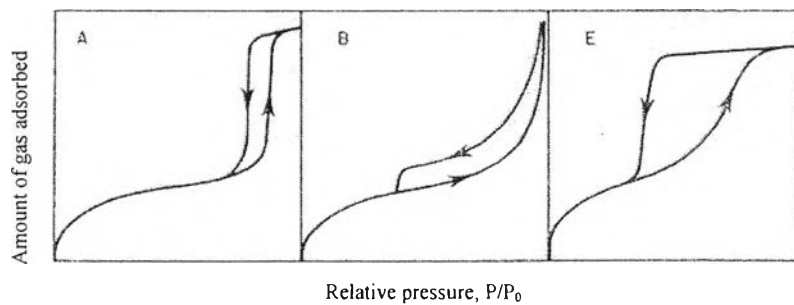


Figure A2 Types of hysteresis loop according to De Boer classification.

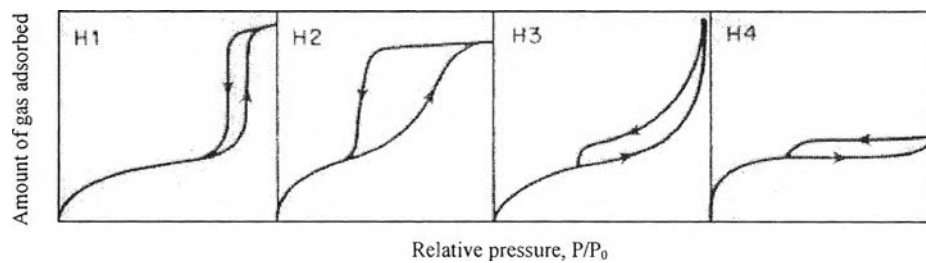


Figure A3 Types of hysteresis loop according to IUPAC classification.

Appendix B Supplementary Results

Table B1 Surface areas, cumulative pore volumes, and average pore diameters of poly(DVB)HIPEs filled with different amount of organo clay content (wt%)

S80DCI	Surface areas (m ² /g) ^a	Cumulative pore volumes (cm ³ /g) ^b	Average pore diameters (nm) ^b
0 wt%	549.6	0.2652	1.348
1 wt%	499.4	0.2247	1.505
3 wt%	469.2	0.2082	1.360
5 wt%	447.9	0.1893	1.362
10 wt%	141.3	0.0763	1.365

S80DCII	Surface areas (m ² /g) ^a	Cumulative pore volumes (cm ³ /g) ^b	Average pore diameters (nm) ^b
0 wt%	198.4	0.1083	1.511
1 wt%	361.6	0.1958	1.344
3 wt%	420.6	0.1979	1.358
5 wt%	216.2	0.1215	1.358
10 wt%	144.0	0.0748	1.369

^a From BET treatment of N₂ adsorption data.

^b From BJH treatment of N₂ adsorption data.

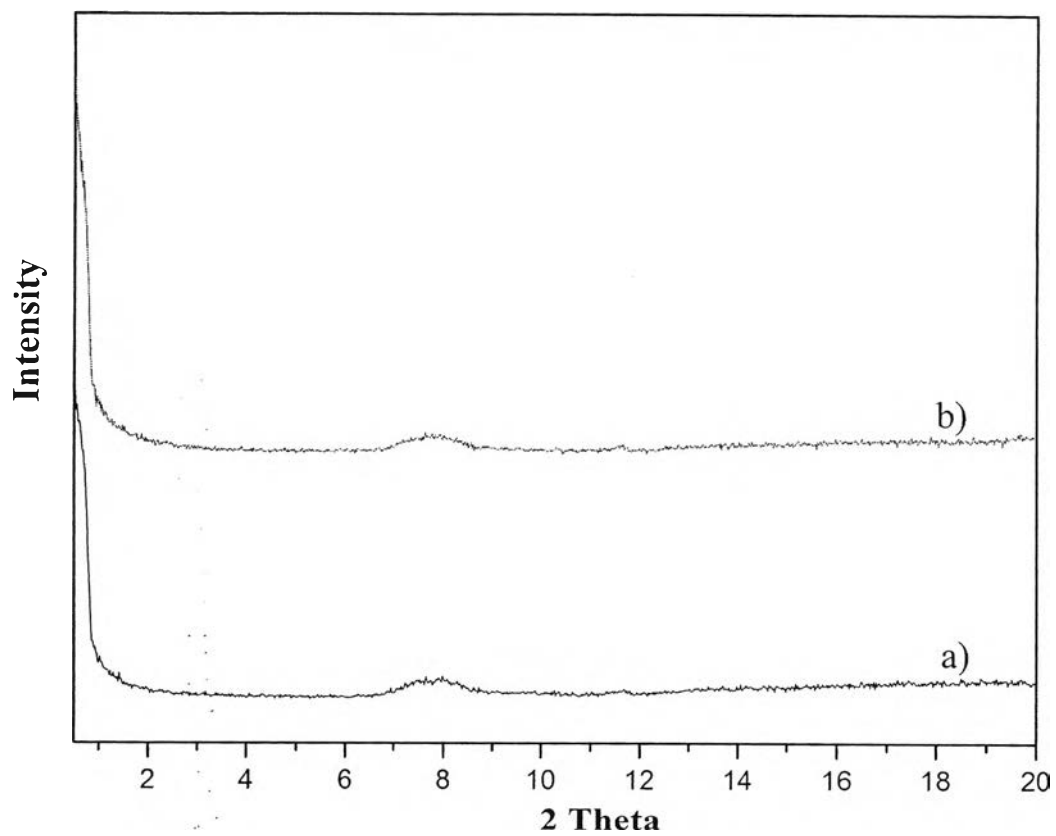


Figure B1 XRD pattern of (a) poly(DVB)HIPE, (b) poly(DVB)HIPE nanocomposite.

Table B2 Volume adsorbed for S80DCI and S80DCII filled with different acid-treated clay content (wt%)

Sample	0 wt%		1 wt%		3 wt%		5 wt%		10 wt%		15 wt%	
	PP ₀	Volume (cc/g)	PP ₀	Volume (cc/g)	PP ₀	Volume (cc/g)	PP ₀	Volume (cc/g)	PP ₀	Volume (cc/g)	PP ₀	Volume (cc/g)
S80DCI	0.049110	106.4895	0.050084	90.6580	0.051601	78.2414	0.047831	60.7122	0.053798	61.0078	0.048490	22.3300
	0.074745	118.4652	0.075702	101.6310	0.072630	85.1083	0.077246	69.8879	0.073129	68.6739	0.074871	24.8401
	0.097813	126.7083	0.097685	109.8331	0.097779	92.0076	0.100250	75.8071	0.097800	75.1024	0.102420	27.4584
	0.149860	141.7666	0.151070	124.0065	0.152180	102.9477	0.153330	86.3390	0.154030	84.5422	0.149380	32.2623
	0.202195	154.8906	0.202970	137.1673	0.198990	110.7548	0.198240	94.3232	0.205960	93.0661	0.201840	36.1799
	0.248515	164.7106	0.249580	146.7167	0.248740	118.9290	0.249950	101.9920	0.247610	100.8578	0.253420	39.5470
	0.298940	174.6935	0.299460	156.5368	0.301280	126.3330	0.301300	109.1701	0.298220	108.7507	0.303000	43.0647
S80DCII	0.051542	30.0991	0.050412	43.0451	0.051312	41.0444	0.050412	43.0451	0.050781	102.1681	0.053492	67.1461
	0.078895	34.7488	0.075208	48.6719	0.075837	46.6362	0.075208	48.6719	0.074197	112.2748	0.074393	73.5138
	0.098851	37.6904	0.101800	53.8437	0.102625	51.5487	0.101800	53.8437	0.098815	120.3930	0.099667	80.2114
	0.152920	44.1695	0.149930	61.0460	0.150065	58.8129	0.149930	61.0460	0.151790	134.3728	0.147580	89.2134
	0.204890	49.6636	0.201260	67.8012	0.201225	65.8494	0.201260	67.8012	0.200435	145.7557	0.198990	97.5528
	0.255670	54.6595	0.250980	74.6617	0.252910	72.1771	0.250980	74.6617	0.249335	155.6145	0.249600	105.4973
	0.299000	58.7135	0.302350	81.1373	0.303840	78.2208	0.302350	81.1373	0.301205	165.4350	0.301760	112.9095

Table B3 Load (N), Extension (mm), Stress (MPa), and Percentage Strain of S80DCI and S80DCII filled with different amount of acid-trated clay content (wt%)

S80DCI filled with 0 wt% of acid-treated clay

Load	Extension	Stress	Percentage Strain	Load	Extension	Stress	Percentage Strain
0.039856	0.11174	0.000078657	0.43993	70.701	6.0607	0.13953	23.861
0.016906	0.29072	0.000033364	1.1446	72.261	6.2427	0.14261	24.578
0.59885	0.47232	0.0011818	1.8595	72.719	6.4216	0.14351	25.282
3.2007	0.65246	0.0063166	2.5688	71.217	6.6021	0.14055	25.992
4.5003	0.83115	0.0088814	3.2722	71.505	6.7831	0.14112	26.705
4.7332	1.0119	0.0093412	3.9838	72.226	6.9627	0.14254	27.412
5.0517	1.1928	0.0099697	4.696	72.474	7.1443	0.14303	28.127
8.759	1.372	0.017286	5.4015	70.719	7.325	0.13957	28.838
12.956	1.5526	0.025569	6.1126	70.226	7.5055	0.13859	29.549
17.781	1.733	0.03509	6.823	70.553	7.686	0.13924	30.26
23.254	1.9157	0.045893	7.5422	66.138	7.8663	0.13052	30.97
29.087	2.094	0.057404	8.2441	65.973	8.0455	0.1302	31.675
35.544	2.2744	0.070147	8.9543	66.197	8.2276	0.13064	32.392
44.308	2.4544	0.087444	9.663	66.807	8.4064	0.13185	33.096
53.361	2.6353	0.10531	10.375	67.562	8.588	0.13333	33.811
59.755	2.8162	0.11793	11.087	68.297	8.7675	0.13479	34.518
67.406	2.9971	0.13303	11.8	69.375	8.9472	0.13691	35.225
74.111	3.1775	0.14626	12.51	69.984	9.1277	0.13811	35.936
78.801	3.3565	0.15552	13.215	70.821	9.3085	0.13977	36.648
81.618	3.5389	0.16108	13.933	71.561	9.4891	0.14123	37.359
83.891	3.7175	0.16556	14.636	73.013	9.6678	0.14409	38.062
83.838	3.899	0.16546	15.351	74.296	9.8499	0.14663	38.779
82.75	4.0779	0.16331	16.055	75.317	10.029	0.14864	39.486
81.39	4.2579	0.16062	16.763	74.113	10.21	0.14626	40.196
79.951	4.4399	0.15779	17.48	75.021	10.391	0.14806	40.909
79.372	4.6186	0.15664	18.184	75.938	10.571	0.14987	41.618
78.072	4.7993	0.15408	18.895	76.883	10.75	0.15173	42.324
77.816	4.9799	0.15357	19.606	76.575	10.931	0.15112	43.033
75.458	5.1598	0.14892	20.314	76.666	11.111	0.1513	43.746
69.896	5.3395	0.13794	21.022	77.161	11.293	0.15228	44.46
69.869	5.5191	0.13789	21.729	77.261	11.474	0.15248	45.172
69.947	5.7019	0.13804	22.448	75.116	11.653	0.14824	45.876
70.066	5.8809	0.13828	23.153	75.394	11.834	0.14879	46.592

S80DCI filled with 1 wt% of acid-treated clay

Load	Extension	Stress	Percentage Strain	Load	Extension	Stress	Percentage Strain
0.041744	0.1127	8.24E-05	0.44371	71.72	6.7829	0.14154	26.704
0.015168	0.29211	2.99E-05	1.1501	71.206	6.9643	0.14053	27.418
-0.03781	0.47479	-7.5E-05	1.8693	70.341	7.1442	0.13882	28.127
0.00834	0.65395	1.65E-05	2.5746	67.683	7.3242	0.13357	28.835
0.79112	0.83365	0.001561	3.2821	67.81	7.5046	0.13383	29.546
3.2356	1.0139	0.006386	3.9918	68.421	7.685	0.13503	30.256
4.4718	1.1939	0.008825	4.7003	66.838	7.8657	0.13191	30.967
4.7297	1.3745	0.009334	5.4114	61.889	8.0455	0.12214	31.675
5.3832	1.5549	0.010624	6.1218	61.385	8.227	0.12115	32.39
9.6128	1.7344	0.018971	6.8284	60.715	8.4067	0.11982	33.097
14.719	1.9159	0.029049	7.5428	60.171	8.5868	0.11875	33.806
21.183	2.0962	0.041805	8.2528	58.763	8.7666	0.11597	34.514
29.238	2.2772	0.057701	8.9653	58.34	8.9467	0.11513	35.223
38.687	2.457	0.07635	9.6731	57.562	9.1265	0.1136	35.931
48.712	2.6353	0.096134	10.375	56.793	9.3071	0.11208	36.642
59.325	2.8171	0.11708	11.091	55.884	9.4882	0.11029	37.355
69.51	2.9965	0.13718	11.797	55.367	9.6687	0.10927	38.066
78.233	3.1772	0.1544	12.509	54.55	9.8492	0.10765	38.776
84.595	3.3583	0.16695	13.222	53.522	10.028	0.10563	39.481
89.299	3.5382	0.17623	13.93	53.385	10.208	0.10536	40.189
92.227	3.7192	0.18201	14.643	53.195	10.389	0.10498	40.902
90.332	3.8991	0.17827	15.351	53.584	10.568	0.10575	41.607
88.674	4.0803	0.175	16.064	54.228	10.749	0.10702	42.318
87.622	4.2597	0.17292	16.771	54.558	10.929	0.10767	43.029
84.428	4.4387	0.16662	17.475	55.41	11.11	0.10935	43.741
80.026	4.6198	0.15793	18.188	56.008	11.29	0.11053	44.45
78.532	4.7999	0.15499	18.897	56.391	11.471	0.11129	45.161
78.279	4.9797	0.15449	19.605	57.782	11.651	0.11403	45.871
78.573	5.1608	0.15507	20.318	58.514	11.832	0.11548	46.582
78.791	5.3411	0.1555	21.028	59.472	12.011	0.11737	47.288
78.115	5.5208	0.15416	21.735	60.1	12.192	0.11861	48
76.181	5.7016	0.15035	22.447	59.9	12.372	0.11821	48.708
70.432	5.8811	0.139	23.154	61.213	12.554	0.12081	49.424
69.993	6.0617	0.13813	23.865	60.698	12.732	0.11979	50.128
70.873	6.2415	0.13987	24.573	71.206	6.9643	0.14053	27.418
71.324	6.4226	0.14076	25.286	70.341	7.1442	0.13882	28.127
71.71	6.6024	0.14152	25.994	67.683	7.3242	0.13357	28.835

S80DCI filled with 3 wt% of acid-treated clay

Load	Extension	Stress	Percentage Strain	Load	Extension	Stress	Percentage Strain
0.033644	0.11433	6.64E-05	0.4501	100.09	6.7839	0.19753	26.708
-0.02304	0.2949	-4.5E-05	1.161	96.352	6.9638	0.19015	27.417
0.024054	0.47449	4.75E-05	1.8681	94.162	7.1445	0.18583	28.128
0.03622	0.65455	7.15E-05	2.577	93.096	7.3246	0.18373	28.837
-0.00827	0.83615	-1.6E-05	3.2919	91.597	7.5045	0.18077	29.545
0.074633	1.0147	0.000147	3.9949	91.213	7.684	0.18001	30.252
0.087702	1.1956	0.000173	4.7069	90.348	7.8652	0.1783	30.965
0.005979	1.3759	1.18E-05	5.4168	89.97	8.0453	0.17756	31.674
0.029858	1.5559	5.89E-05	6.1257	89.541	8.2252	0.17671	32.383
-0.0262	1.7369	-5.2E-05	6.8381	88.805	8.4072	0.17526	33.099
0.044541	1.917	8.79E-05	7.5472	88.941	8.5869	0.17553	33.807
0.014363	2.096	2.83E-05	8.252	87.426	8.7665	0.17254	34.514
0.1098	2.2782	0.000217	8.9692	85.231	8.9462	0.16821	35.221
0.10137	2.456	0.0002	9.6695	83.407	9.1267	0.16461	35.932
0.15302	2.6364	0.000302	10.379	80.081	9.3077	0.15804	36.644
0.048913	2.8175	9.65E-05	11.092	78.905	9.4877	0.15572	37.353
0.06268	2.9983	0.000124	11.804	79.129	9.6675	0.15616	38.061
0.12249	3.1789	0.000242	12.515	79.426	9.848	0.15675	38.772
0.38818	3.3584	0.000766	13.222	80.156	10.029	0.15819	39.486
1.6776	3.5385	0.003311	13.931	81.555	10.209	0.16095	40.192
4.1021	3.7188	0.008096	14.641	82.985	10.389	0.16377	40.904
7.8404	3.8986	0.015473	15.349	82.239	10.569	0.1623	41.611
13.687	4.0792	0.027012	16.06	83.258	10.749	0.16431	42.321
20.334	4.2605	0.04013	16.774	83.724	10.93	0.16523	43.03
27.217	4.4406	0.053713	17.483	83.839	11.109	0.16546	43.737
33.773	4.6215	0.066652	18.195	83.962	11.291	0.1657	44.452
42.653	4.8003	0.084176	18.899	84.194	11.47	0.16616	45.159
53.328	4.9832	0.10524	19.619	83.836	11.651	0.16545	45.868
65.613	5.1622	0.12949	20.323	83.281	11.832	0.16436	46.584
76.988	5.3424	0.15194	21.033	83.442	12.012	0.16468	47.29
83.198	5.5214	0.16419	21.738	82.94	12.193	0.16368	48.003
90.592	5.7027	0.17879	22.452	79.843	12.372	0.15757	48.709
96.947	5.8818	0.19133	23.157	80.098	12.553	0.15808	49.421
100.92	6.0612	0.19917	23.863	79.611	12.734	0.15711	50.133
105.87	6.2418	0.20894	24.574	80.577	12.914	0.15902	50.843
106.9	6.4232	0.21098	25.288	96.352	6.9638	0.19015	27.417
100.71	6.6006	0.19875	25.986	94.162	7.1445	0.18583	28.128

S80DCI filled with 5 wt% of acid-treated clay

Load	Extension	Stress	Percentage Strain	Load	Extension	Stress	Percentage Strain
0.053643	0.11121	0.000106	0.43784	73.052	6.7818	0.14417	26.7
0.00452	0.29066	8.92E-06	1.1443	68.208	6.9611	0.13461	27.406
0.055442	0.47032	0.000109	1.8517	64.416	7.1415	0.12713	28.116
0.044745	0.65129	8.83E-05	2.5641	63.456	7.3216	0.12523	28.825
0.023174	0.83067	4.57E-05	3.2703	62.792	7.504	0.12392	29.543
0.078354	1.0113	0.000155	3.9815	62.612	7.6845	0.12357	30.254
0.49086	1.1913	0.000969	4.6901	61.756	7.8631	0.12188	30.957
1.9509	1.3718	0.00385	5.4008	61.22	8.0441	0.12082	31.67
4.2936	1.5528	0.008474	6.1135	59.48	8.2245	0.11738	32.38
4.6449	1.7319	0.009167	6.8184	58.447	8.4042	0.11535	33.087
4.8704	1.9145	0.009612	7.5375	57.619	8.5856	0.11371	33.801
6.6315	2.093	0.013088	8.2403	56.793	8.7658	0.11208	34.511
10.944	2.2744	0.021598	8.9543	56.199	8.9463	0.11091	35.222
16.004	2.4552	0.031585	9.6662	56.944	9.1263	0.11238	35.93
22.161	2.6344	0.043736	10.372	57.586	9.3073	0.11365	36.643
28.9	2.8154	0.057035	11.084	58.45	9.486	0.11535	37.347
37.654	2.9956	0.074311	11.794	57.448	9.6672	0.11338	38.06
47.897	3.1754	0.094527	12.501	57.794	9.8464	0.11406	38.765
59.687	3.356	0.11779	13.213	57.973	10.026	0.11441	39.473
72.125	3.5349	0.14234	13.917	58.499	10.207	0.11545	40.186
84.465	3.7155	0.16669	14.628	59.121	10.388	0.11668	40.896
97.537	3.8968	0.19249	15.342	59.492	10.568	0.11741	41.606
108.42	4.078	0.21398	16.055	59.065	10.748	0.11657	42.314
115.69	4.2572	0.22831	16.76	59.23	10.928	0.11689	43.023
119.53	4.4385	0.23589	17.474	59.704	11.108	0.11783	43.734
119.49	4.6179	0.23581	18.181	59.917	11.288	0.11825	44.441
118.91	4.7979	0.23468	18.889	60.864	11.468	0.12012	45.151
116.8	4.9782	0.23052	19.599	61.971	11.649	0.1223	45.864
114.26	5.1593	0.22549	20.312	63.456	11.829	0.12523	46.572
106.84	5.339	0.21085	21.02	64.527	12.01	0.12735	47.283
105.17	5.519	0.20755	21.728	66.19	12.191	0.13063	47.996
95.197	5.7006	0.18787	22.443	66.936	12.372	0.1321	48.707
91.795	5.8799	0.18116	23.149	67.743	12.551	0.13369	49.413
86.05	6.0598	0.16982	23.858	68.712	12.732	0.13561	50.125
83.798	6.2397	0.16538	24.566	69.89	12.911	0.13793	50.831
79.448	6.4205	0.15679	25.278	68.208	6.9611	0.13461	27.406
76.554	6.6013	0.15108	25.99	64.416	7.1415	0.12713	28.116

Load	Extension	Stress	Percentage Strain	Load	Extension	Stress	Percentage Strain
63.456	7.3216	0.12523	28.825	94.309	15.075	0.18612	59.351
62.792	7.504	0.12392	29.543	96.895	15.256	0.19123	60.063
71.45	13.092	0.14101	51.544				
73.082	13.272	0.14423	52.253				
75.029	13.454	0.14807	52.969				
77.206	13.634	0.15237	53.678				
79.494	13.814	0.15688	54.386				
81.797	13.993	0.16143	55.091				
83.953	14.173	0.16568	55.801				
86.542	14.356	0.17079	56.518				
88.247	14.534	0.17416	57.221				
90.236	14.715	0.17808	57.932				
92.353	14.895	0.18226	58.641				
94.309	15.075	0.18612	59.351				
96.895	15.256	0.19123	60.063				
98.595	15.435	0.19458	60.769				
100.53	15.615	0.19839	61.477				
102.44	15.795	0.20217	62.186				
105.05	15.976	0.20731	62.896				
106.82	16.157	0.21081	63.609				
107.3	16.338	0.21176	64.321				
109.71	16.519	0.21651	65.034				
111.88	16.698	0.22079	65.741				
114.23	16.879	0.22543	66.451				
115.58	17.059	0.22811	67.163				
118.25	17.24	0.23338	67.873				
121.2	17.42	0.23919	68.584				
123.87	17.599	0.24445	69.289				
127.08	17.78	0.25081	70				
71.45	13.092	0.14101	51.544				
73.082	13.272	0.14423	52.253				
75.029	13.454	0.14807	52.969				
77.206	13.634	0.15237	53.678				
79.494	13.814	0.15688	54.386				
81.797	13.993	0.16143	55.091				
83.953	14.173	0.16568	55.801				
86.542	14.356	0.17079	56.518				
88.247	14.534	0.17416	57.221				
90.236	14.715	0.17808	57.932				
92.353	14.895	0.18226	58.641				

S80DCI filled with 10 wt% of acid-treated clay

Load	Extension	Stress	Percentage Strain	Load	Extension	Stress	Percentage Strain
0.038511	0.1112	7.6E-05	0.43781	36.758	6.7804	0.072542	26.694
0.084699	0.29171	0.000167	1.1485	37.016	6.9609	0.073053	27.405
0.10768	0.47066	0.000213	1.853	37.388	7.1408	0.073785	28.113
0.10515	0.6517	0.000208	2.5657	37.89	7.3228	0.074777	28.83
0.54301	0.83229	0.001072	3.2767	38.089	7.5035	0.075169	29.541
1.7619	1.0123	0.003477	3.9852	38.371	7.6826	0.075726	30.247
4.2705	1.1935	0.008428	4.6989	35.764	7.8644	0.070581	30.962
4.6517	1.372	0.00918	5.4015	36.046	8.0433	0.071137	31.667
4.7918	1.5523	0.009457	6.1115	36.705	8.2239	0.072437	32.378
6.4014	1.7332	0.012633	6.8235	37.724	8.4056	0.074449	33.093
10.851	1.9128	0.021414	7.5307	38.528	8.5842	0.076036	33.796
16.081	2.0933	0.031735	8.2414	39.224	8.7642	0.07741	34.505
19.304	2.2736	0.038098	8.9513	39.577	8.9455	0.078106	35.218
26.569	2.4544	0.052434	9.663	40.617	9.125	0.080159	35.925
36.127	2.6354	0.071298	10.376	41.366	9.3057	0.081636	36.637
47.17	2.8152	0.09309	11.083	42.271	9.4859	0.083423	37.346
56.061	2.9948	0.11064	11.791	43.252	9.6663	0.085359	38.056
65.799	3.1757	0.12986	12.503	43.809	9.8468	0.086459	38.767
74.373	3.3562	0.14678	13.213	44.269	10.027	0.087366	39.476
77.391	3.5357	0.15273	13.92	44.772	10.207	0.088359	40.187
78.334	3.7156	0.15459	14.629	42.717	10.386	0.084302	40.891
75.723	3.8963	0.14944	15.34	42.166	10.568	0.083216	41.605
70.959	4.0778	0.14004	16.054	42.28	10.747	0.083441	42.309
70.724	4.2575	0.13958	16.762	42.971	10.929	0.084805	43.028
66.655	4.437	0.13154	17.469	43.828	11.108	0.086496	43.732
67.185	4.6181	0.13259	18.181	45.03	11.288	0.088867	44.442
66.736	4.798	0.13171	18.89	45.674	11.47	0.090139	45.157
64.809	4.9776	0.1279	19.597	46.225	11.65	0.091226	45.865
64.212	5.1587	0.12672	20.31	46.567	11.83	0.091902	46.573
52.807	5.3387	0.10422	21.019	47.453	12.01	0.09365	47.284
47.448	5.5185	0.093641	21.726	48.022	12.19	0.094772	47.992
45.719	5.6993	0.090228	22.438	48.547	12.371	0.095808	48.703
44.49	5.879	0.087802	23.146	48.692	12.552	0.096094	49.417
42.859	6.0595	0.084583	23.856	48.515	12.731	0.095745	50.123
38.966	6.2403	0.076901	24.568	49.198	12.912	0.097093	50.833
36.02	6.4201	0.071086	25.276	37.016	6.9609	0.073053	27.405
36.559	6.6014	0.072151	25.99	37.388	7.1408	0.073785	28.113

S80DCI filled with 15 wt% of acid-treated clay

Load	Extension	Stress	Percentage Strain	Load	Extension	Stress	Percentage Strain
0.0654	0.11315	0.000129	0.44547	94.184	6.7826	0.18587	26.703
0.082765	0.29364	0.000163	1.1561	90.788	6.9629	0.17917	27.413
0.10935	0.47273	0.000216	1.8611	89.299	7.1443	0.17623	28.127
0.060737	0.65291	0.00012	2.5705	86.852	7.3232	0.1714	28.832
0.021784	0.83445	4.3E-05	3.2853	85.701	7.5045	0.16913	29.545
0.05446	1.0138	0.000107	3.9914	85.327	7.6836	0.1684	30.25
0.085976	1.1941	0.00017	4.7011	84.556	7.8646	0.16687	30.963
0.090541	1.3751	0.000179	5.4139	83.275	8.0436	0.16434	31.668
0.055853	1.5536	0.00011	6.1165	80.468	8.2248	0.1588	32.381
0.095612	1.7348	0.000189	6.8299	80.941	8.4042	0.15974	33.087
0.041315	1.9152	8.15E-05	7.5403	81.568	8.5841	0.16098	33.796
0.13754	2.096	0.000271	8.2519	83.183	8.7662	0.16416	34.512
1.2773	2.2756	0.002521	8.959	84.211	8.9464	0.16619	35.222
3.6771	2.4566	0.007257	9.6716	86.773	9.1279	0.17125	35.937
4.461	2.6358	0.008804	10.377	88.124	9.3068	0.17392	36.641
4.71	2.8164	0.009295	11.088	87.663	9.4858	0.173	37.346
5.1131	2.9985	0.010091	11.805	89.571	9.6668	0.17677	38.058
7.2657	3.1772	0.014339	12.509	91.044	9.8474	0.17968	38.769
12.401	3.3579	0.024473	13.22	91.706	10.027	0.18098	39.478
18.395	3.5387	0.036303	13.932	93.297	10.207	0.18412	40.187
24.36	3.7172	0.048074	14.635	92.945	10.388	0.18343	40.897
31.496	3.898	0.062158	15.347	93.449	10.568	0.18442	41.608
37.269	4.0781	0.073552	16.055	93.655	10.749	0.18483	42.318
44.425	4.2579	0.087674	16.763	93.808	10.93	0.18513	43.031
53.551	4.4398	0.10568	17.479	94.734	11.111	0.18696	43.744
62.768	4.6185	0.12387	18.183	95.463	11.29	0.1884	44.45
72.198	4.7991	0.14248	18.894	95.362	11.47	0.1882	45.159
79.947	4.9796	0.15778	19.605	95.022	11.651	0.18753	45.869
87.181	5.161	0.17205	20.319	95.05	11.83	0.18758	46.574
91.023	5.3393	0.17964	21.021	92.99	12.011	0.18352	47.288
95.036	5.5201	0.18756	21.733	93.4	12.192	0.18433	47.999
98.726	5.7015	0.19484	22.447	92.805	12.371	0.18315	48.704
100.65	5.8815	0.19864	23.155	94.926	12.553	0.18734	49.419
101.54	6.0621	0.20039	23.866	94.293	12.732	0.18609	50.127
100.54	6.2426	0.19842	24.577	96.299	12.912	0.19005	50.835
98.477	6.4219	0.19435	25.283	90.788	6.9629	0.17917	27.413
97.056	6.6018	0.19154	25.991	89.299	7.1443	0.17623	28.127

Load	Extension	Stress	Percentage Strain	Load	Extension	Stress	Percentage Strain
86.852	7.3232	0.1714	28.832	113.62	15.076	0.22423	59.354
85.701	7.5045	0.16913	29.545	115.2	15.256	0.22734	60.062
98.027	13.092	0.19346	51.543				
99.479	13.272	0.19632	52.251				
100.39	13.452	0.19813	52.96				
99.454	13.633	0.19627	53.672				
100.62	13.813	0.19858	54.383				
102.9	13.994	0.20307	55.093				
103.91	14.174	0.20507	55.803				
105.88	14.354	0.20896	56.512				
107.55	14.536	0.21224	57.227				
109.68	14.715	0.21645	57.932				
112.15	14.894	0.22134	58.639				
113.62	15.076	0.22423	59.354				
115.2	15.256	0.22734	60.062				
116.82	15.436	0.23055	60.773				
117.25	15.618	0.2314	61.488				
116.9	15.797	0.23071	62.194				
116.41	15.977	0.22974	62.9				
116.58	16.158	0.23007	63.613				
118.62	16.338	0.23409	64.324				
117.96	16.52	0.23279	65.04				
119.3	16.699	0.23543	65.743				
121.75	16.879	0.24028	66.454				
122.14	17.059	0.24105	67.163				
123.84	17.238	0.2444	67.865				
124.51	17.419	0.24572	68.58				
125.77	17.599	0.2482	69.287				
127	17.78	0.25065	69.999				
98.027	13.092	0.19346	51.543				
99.479	13.272	0.19632	52.251				
100.39	13.452	0.19813	52.96				
99.454	13.633	0.19627	53.672				
100.62	13.813	0.19858	54.383				
102.9	13.994	0.20307	55.093				
103.91	14.174	0.20507	55.803				
105.88	14.354	0.20896	56.512				
107.55	14.536	0.21224	57.227				
109.68	14.715	0.21645	57.932				
112.15	14.894	0.22134	58.639				

S80DCII filled with 0 wt% of acid-treated clay

Load	Extension	Stress	Percentage Strain	Load	Extension	Stress	Percentage Strain
0.071934	0.10948	0.000142	0.42998	67.734	6.7814	0.13368	26.698
0.40943	0.28986	0.000808	1.1401	68.503	6.9615	0.13519	27.406
1.8086	0.47104	0.003569	1.8534	70.072	7.1428	0.13829	28.12
3.8984	0.65138	0.007694	2.5634	71.544	7.3229	0.14119	28.829
6.8497	0.83038	0.013518	3.2682	73.227	7.5035	0.14451	29.54
10.21	1.0129	0.020151	3.9867	74.088	7.6825	0.14621	30.245
14.438	1.1929	0.028493	4.6954	75.673	7.864	0.14934	30.959
11.172	1.3721	0.022049	5.401	76.177	8.045	0.15034	31.672
15.261	1.5546	0.030117	6.1194	78.005	8.2242	0.15394	32.378
18.058	1.7342	0.035637	6.8267	79.488	8.4041	0.15687	33.086
21.981	1.9132	0.04338	7.5311	80.582	8.585	0.15903	33.798
26.547	2.0937	0.052392	8.2421	81.615	8.7649	0.16107	34.506
31.989	2.2736	0.063132	8.9502	83.087	8.9452	0.16398	35.216
38.29	2.4535	0.075567	9.6583	84.837	9.1256	0.16743	35.927
45.248	2.6348	0.089297	10.372	85.682	9.3065	0.1691	36.639
49.285	2.8153	0.097264	11.083	86.368	9.4866	0.17045	37.348
57.631	2.9961	0.11374	11.795	87.452	9.6669	0.17259	38.057
65.143	3.1766	0.12856	12.505	88.351	9.8471	0.17436	38.767
69.295	3.3566	0.13676	13.214	88.5	10.028	0.17466	39.477
74.766	3.5369	0.14755	13.924	89.711	10.208	0.17705	40.187
78.761	3.717	0.15544	14.633	90.602	10.389	0.17881	40.9
80.493	3.8962	0.15885	15.338	91.5	10.568	0.18058	41.605
80.082	4.076	0.15804	16.046	92.534	10.749	0.18262	42.316
78.53	4.2562	0.15498	16.756	93.2	10.929	0.18393	43.025
71.613	4.4377	0.14133	17.47	93.386	11.109	0.1843	43.736
66.728	4.617	0.13169	18.176	92.867	11.29	0.18327	44.447
63.117	4.7981	0.12456	18.889	93.042	11.471	0.18362	45.162
58.989	4.9782	0.11642	19.598	94.369	11.651	0.18624	45.871
58.356	5.1587	0.11517	20.309	94.511	11.831	0.18652	46.579
57.939	5.3392	0.11434	21.019	94.73	12.012	0.18695	47.291
59.033	5.5197	0.1165	21.73	95.306	12.191	0.18809	47.995
60.306	5.7002	0.11902	22.441	95.872	12.371	0.1892	48.705
61.94	5.8798	0.12224	23.148	97.327	12.553	0.19208	49.421
63.717	6.0608	0.12575	23.86	98.093	12.732	0.19359	50.125
64.937	6.2407	0.12815	24.569	98.064	12.912	0.19353	50.835
66.129	6.4211	0.13051	25.279	68.503	6.9615	0.13519	27.406
67.265	6.6029	0.13275	25.995	70.072	7.1428	0.13829	28.12

S80DCII filled with 1 wt% of acid-treated clay

Load	Extension	Stress	Percentage Strain	Load	Extension	Stress	Percentage Strain
0.23081	0.11138	0.000456	0.44055	49.121	6.7805	0.096941	26.697
0.48861	0.29042	0.000964	1.1454	48.702	6.9609	0.096115	27.407
0.63427	0.47265	0.001252	1.8629	48.784	7.1414	0.096277	28.118
0.96135	0.65172	0.001897	2.5679	47.776	7.3208	0.094286	28.824
3.3743	0.83176	0.006659	3.2767	46.976	7.5028	0.092709	29.541
4.58	1.0115	0.009039	3.9845	47.523	7.6821	0.093789	30.247
4.816	1.1914	0.009505	4.6925	47.431	7.8636	0.093606	30.961
6.7436	1.3737	0.013309	5.4102	46.241	8.0429	0.091258	31.667
10.577	1.5522	0.020874	6.1129	45.642	8.2222	0.090077	32.373
15.885	1.7323	0.03135	6.8221	45.751	8.4039	0.090291	33.088
23.404	1.9131	0.046188	7.5338	46.04	8.5831	0.090862	33.794
32.505	2.0936	0.064148	8.2448	46.455	8.7639	0.09168	34.506
42.222	2.2741	0.083326	8.9554	46.276	8.9441	0.091326	35.215
53.115	2.4534	0.10482	9.661	43.754	9.1241	0.08635	35.924
62.864	2.635	0.12406	10.376	44.671	9.3052	0.088159	36.637
71.487	2.8136	0.14108	11.079	44.119	9.4863	0.087069	37.35
77.759	2.9954	0.15346	11.795	44.743	9.6663	0.088301	38.058
82.638	3.1757	0.16309	12.505	45.726	9.846	0.090241	38.766
85.096	3.3543	0.16794	13.208	47.196	10.027	0.093142	39.48
85.126	3.5352	0.168	13.92	48.71	10.207	0.096131	40.189
80.436	3.7149	0.15874	14.628	50.017	10.388	0.098711	40.898
78.185	3.8964	0.1543	15.342	51.051	10.568	0.10075	41.609
74.707	4.0774	0.14744	16.055	51.739	10.748	0.10211	42.318
73.796	4.2568	0.14564	16.761	50.123	10.927	0.09892	43.022
71.516	4.4371	0.14114	17.471	50.192	11.108	0.099056	43.736
68.356	4.6183	0.1349	18.185	50.761	11.287	0.10018	44.441
64.381	4.7977	0.12706	18.891	50.021	11.468	0.098718	45.153
62.911	4.9776	0.12416	19.599	50.579	11.649	0.099818	45.865
61.607	5.159	0.12158	20.313	51.031	11.829	0.10071	46.574
60.805	5.3392	0.12	21.022	51.442	12.01	0.10152	47.287
59.589	5.5199	0.1176	21.734	51.455	12.19	0.10155	47.994
57.134	5.6997	0.11276	22.442	50.693	12.37	0.10004	48.703
54.303	5.8809	0.10717	23.155	48.505	12.55	0.095725	49.41
52.23	6.0595	0.10308	23.858	48.02	12.73	0.094768	50.122
50.301	6.2407	0.09927	24.572	48.078	12.91	0.094884	50.828
49.587	6.4203	0.097862	25.279	48.702	6.9609	0.096115	27.407
49.369	6.6011	0.097431	25.991	48.784	7.1414	0.096277	28.118

S80DCII filled with 3 wt% of acid-treated clay

Load	Extension	Stress	Percentage Strain	Load	Extension	Stress	Percentage Strain
0.049868	0.11589	9.84E-05	0.45626	41.873	6.7841	0.082638	26.709
0.062819	0.29496	0.000124	1.1613	40.089	6.9639	0.079116	27.417
0.055968	0.47574	0.00011	1.873	39.591	7.1454	0.078133	28.132
0.085374	0.65636	0.000168	2.5841	39.417	7.3258	0.07779	28.842
0.043161	0.83595	8.52E-05	3.2911	38.515	7.5048	0.076011	29.547
0.20657	1.017	0.000408	4.004	38.188	7.6846	0.075364	30.255
1.3448	1.1968	0.002654	4.7117	38.907	7.8653	0.076784	30.966
3.579	1.378	0.007063	5.4253	39.838	8.0454	0.078622	31.675
4.5002	1.557	0.008881	6.1298	40.654	8.2259	0.080232	32.385
4.7514	1.737	0.009377	6.8387	41.16	8.4064	0.08123	33.096
4.8571	1.9177	0.009586	7.55	41.892	8.5866	0.082675	33.805
8.2364	2.0973	0.016255	8.2573	42.134	8.7668	0.083153	34.515
12.977	2.2783	0.02561	8.9699	42.875	8.9471	0.084615	35.225
18.57	2.4585	0.036648	9.679	43.386	9.1271	0.085623	35.933
26.174	2.6379	0.051654	10.385	44.905	9.308	0.088621	36.646
35.629	2.8192	0.070315	11.099	46.414	9.4892	0.091599	37.359
47.484	2.9979	0.093712	11.803	48.24	9.6688	0.095202	38.066
59.517	3.1781	0.11746	12.512	49.789	9.8496	0.098259	38.778
70.954	3.3584	0.14003	13.222	51.115	10.028	0.10088	39.482
80.601	3.5399	0.15907	13.937	52.718	10.21	0.10404	40.196
88.19	3.7203	0.17404	14.647	53.939	10.39	0.10645	40.905
78.783	3.9002	0.15548	15.355	54.908	10.57	0.10836	41.615
67.707	4.0809	0.13362	16.067	55.015	10.751	0.10857	42.326
60.13	4.2604	0.11867	16.773	54.37	10.932	0.1073	43.038
58.469	4.4418	0.11539	17.487	52.803	11.112	0.10421	43.748
55.717	4.6211	0.10996	18.193	53.938	11.291	0.10645	44.454
54.709	4.8026	0.10797	18.908	55.111	11.471	0.10876	45.161
53.928	4.9822	0.10643	19.615	55.852	11.652	0.11023	45.872
51.938	5.1619	0.1025	20.322	56.45	11.83	0.11141	46.577
48.099	5.3434	0.094924	21.037	57.111	12.012	0.11271	47.291
46.745	5.5233	0.092252	21.745	54.495	12.192	0.10755	47.998
46.564	5.7038	0.091894	22.456	51.586	12.372	0.10181	48.708
46.045	5.8833	0.090871	23.163	51.95	12.554	0.10253	49.424
44.179	6.0634	0.087188	23.872	52.28	12.733	0.10318	50.129
42.386	6.2444	0.08365	24.584	52.565	12.913	0.10374	50.838
42.059	6.4235	0.083005	25.289	40.089	6.9639	0.079116	27.417
42.528	6.6044	0.083931	26.002	39.591	7.1454	0.078133	28.132

S80DCII filled with 5 wt% of acid-treated clay

Load	Extension	Stress	Percentage Strain	Load	Extension	Stress	Percentage Strain
0.062022	0.10996	0.000122	0.43291	111.43	6.7807	0.21992	26.696
0.10004	0.29015	0.000197	1.1423	112.26	6.9607	0.22155	27.404
-0.00537	0.46997	-1.1E-05	1.8503	108.58	7.1418	0.21429	28.117
0.027129	0.65009	5.35E-05	2.5594	104.56	7.321	0.20635	28.823
0.068492	0.831	0.000135	3.2717	87.597	7.5022	0.17287	29.536
0.06926	1.0109	0.000137	3.9798	84.011	7.6834	0.1658	30.25
0.070028	1.1921	0.000138	4.6932	71.561	7.8638	0.14123	30.96
0.070796	1.3725	0.00014	5.4035	70.114	8.0434	0.13837	31.667
0.064198	1.5519	0.000127	6.1097	70.897	8.2244	0.13992	32.379
0.054321	1.7319	0.000107	6.8184	71.581	8.4031	0.14127	33.083
0.078589	1.9126	0.000155	7.5297	71.179	8.5843	0.14047	33.797
0.056278	2.0919	0.000111	8.2356	69.527	8.7654	0.13721	34.51
0.055255	2.2732	0.000109	8.9496	66.939	8.9461	0.13211	35.221
0.054231	2.4546	0.000107	9.6638	63.701	9.1263	0.12571	35.93
0.053132	2.6341	0.000105	10.371	62.433	9.3062	0.12321	36.639
0.051982	2.814	0.000103	11.079	60.822	9.4858	0.12003	37.345
0.050832	2.9952	0.0001	11.792	60.299	9.6664	0.119	38.057
-0.02114	3.1753	-4.2E-05	12.501	59.945	9.8463	0.1183	38.765
-0.02144	3.3563	-4.2E-05	13.214	58.45	10.027	0.11535	39.476
-0.02174	3.5364	-4.3E-05	13.923	58.123	10.207	0.11471	40.186
-0.02204	3.7167	-4.3E-05	14.633	57.701	10.387	0.11387	40.894
1.0972	3.8973	0.002165	15.344	57.866	10.567	0.1142	41.602
3.8308	4.0766	0.00756	16.05	58.745	10.748	0.11593	42.315
7.1675	4.2565	0.014145	16.758	59.235	10.928	0.1169	43.024
11.457	4.4361	0.022611	17.465	58.956	11.109	0.11635	43.735
16.861	4.6159	0.033276	18.173	60.066	11.29	0.11854	44.449
22.89	4.7986	0.045174	18.892	60.041	11.47	0.11849	45.158
30.207	4.9779	0.059614	19.598	58.82	11.652	0.11608	45.872
37.935	5.1589	0.074866	20.31	58.226	11.83	0.11491	46.574
47.323	5.3376	0.093394	21.014	58.934	12.01	0.11631	47.284
57.829	5.519	0.11413	21.728	59.109	12.192	0.11665	47.999
68.514	5.698	0.13521	22.433	59.191	12.372	0.11682	48.708
79.827	5.8799	0.15754	23.149	57.117	12.552	0.11272	49.417
88.441	6.0591	0.17454	23.855	55.803	12.731	0.11013	50.123
97.773	6.2396	0.19296	24.565	55.164	12.912	0.10887	50.836
104.27	6.4208	0.20578	25.279	112.26	6.9607	0.22155	27.404
108.91	6.6004	0.21494	25.986	108.58	7.1418	0.21429	28.117

S80DCII filled with 10 wt% of acid-treated clay

Load	Extension	Stress	Percentage Strain	Load	Extension	Stress	Percentage Strain
0.045005	0.11395	8.88E-05	0.44863	56.1	6.7849	0.11071	26.712
0.12419	0.29389	0.000245	1.157	52.765	6.9639	0.10413	27.417
0.098452	0.47441	0.000194	1.8678	51.033	7.1445	0.10072	28.128
0.033606	0.65495	6.63E-05	2.5785	51.549	7.3237	0.10173	28.833
0.08484	0.8343	0.000167	3.2847	52.343	7.5043	0.1033	29.545
0.07471	1.0146	0.000147	3.9945	53.621	7.6861	0.10582	30.26
0.11701	1.1954	0.000231	4.7064	54.551	7.8655	0.10766	30.967
1.6806	1.3776	0.003317	5.4237	55.222	8.046	0.10898	31.677
4.5422	1.5557	0.008964	6.1248	54.695	8.2249	0.10794	32.382
4.6403	1.7359	0.009158	6.8344	54.276	8.4055	0.10712	33.092
4.6891	1.9178	0.009254	7.5502	53.907	8.5874	0.10639	33.809
7.5088	2.0961	0.014819	8.2524	53.706	8.7658	0.10599	34.511
13.328	2.2776	0.026303	8.9668	54.281	8.9465	0.10712	35.223
19.947	2.4582	0.039365	9.6779	54.581	9.1283	0.10772	35.938
27.034	2.6385	0.053352	10.388	53.648	9.3069	0.10588	36.641
34.729	2.8176	0.068539	11.093	53.713	9.4884	0.106	37.356
45.534	2.9977	0.089863	11.802	53.581	9.6695	0.10574	38.069
57.892	3.1784	0.11425	12.514	53.117	9.8486	0.10483	38.774
69.234	3.3585	0.13664	13.223	53.663	10.029	0.1059	39.486
79.138	3.5394	0.15618	13.934	51.738	10.209	0.10211	40.192
83.12	3.7189	0.16404	14.641	51.136	10.39	0.10092	40.907
87.059	3.8987	0.17181	15.349	50.87	10.571	0.10039	41.617
68.826	4.0796	0.13583	16.061	50.855	10.75	0.10036	42.323
65.378	4.2602	0.12903	16.773	50.419	10.931	0.099503	43.035
58.612	4.4401	0.11567	17.481	49.037	11.111	0.096776	43.746
55.712	4.6203	0.10995	18.19	48.362	11.292	0.095444	44.456
56.653	4.8019	0.11181	18.905	48.452	11.472	0.095622	45.164
56.82	4.9816	0.11214	19.613	48.632	11.651	0.095977	45.868
58.278	5.1609	0.11501	20.319	48.877	11.833	0.096459	46.585
59.141	5.3413	0.11672	21.029	48.81	12.012	0.096328	47.29
60.01	5.522	0.11843	21.74	46.619	12.192	0.092003	48.001
60.958	5.7032	0.1203	22.454	46.049	12.371	0.09088	48.706
61.431	5.8829	0.12124	23.161	45.653	12.551	0.090097	49.413
59.558	6.0628	0.11754	23.869	46.116	12.732	0.091011	50.125
60.444	6.2442	0.11929	24.583	46.33	12.914	0.091434	50.841
60.773	6.423	0.11994	25.287	52.765	6.9639	0.10413	27.417
56.142	6.6036	0.1108	25.998	51.033	7.1445	0.10072	28.128

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Proceedings:

1. Pannak, P., Malakul, P., Magaraphan, R., and Nithitanakul, M. (2008, November 6-8) PolyHIPE filled with acid treated clay. Proceedings of the NanoThailand Symposium 2008 (NTS 2008), Queen Sirikit's Convection Center, Bangkok, Thailand.
2. Pannak, P., Malakul, P., Magaraphan, R., and Nithitanakul, M. (2009, February 25-27) Adsorption of toxic gases from gasification process by polyHIPEs. Proceedings of Global Plastics Environmental Conference (GPEC®2009), Disney's Coronado Spring Resort, Walt Disney World®, Orlando, Florida.
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