

A systematic study on the degradation products generated from artificially aged microplastics

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Supplementary Materials

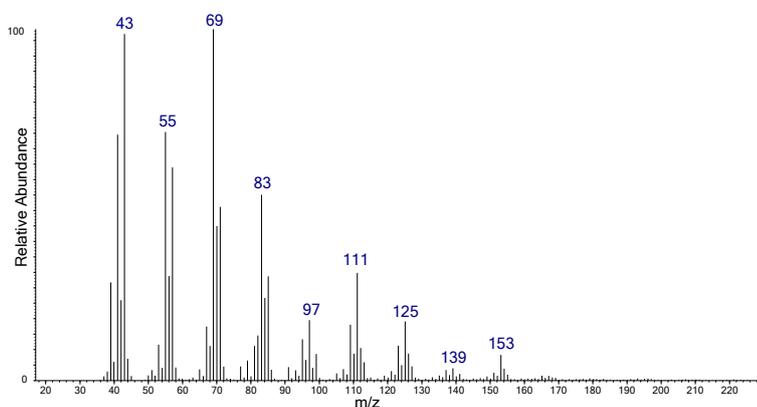


Figure S.1 Average mass spectrum of the peak (from 421 °C to 480 °C) from the EGA curve (**Figure 3**) of the unaged polypropylene (PP-0w) reference sample.

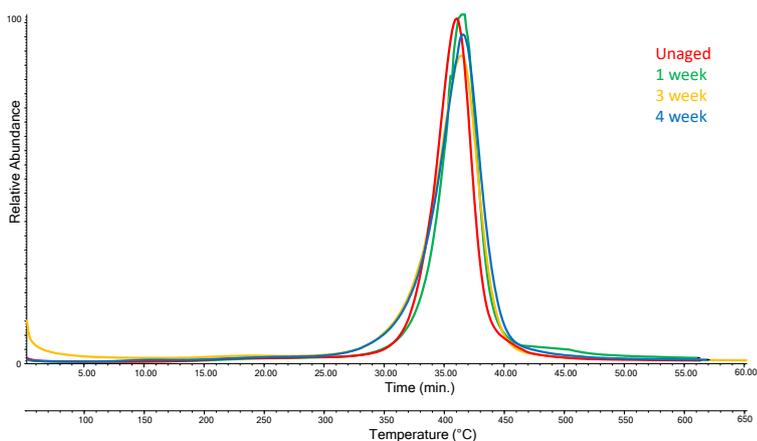


Figure S.2 EGA profiles of PS after different artificial aging times: PS-0w (red), PS-1w (green), PS-3w (yellow), and PS-4w (blue) accelerated aging.

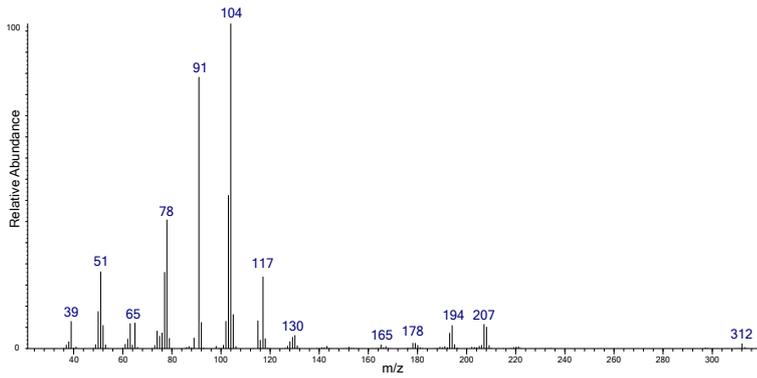


Figure S.3 Average mass spectrum of the peak (from 350 °C to 450 °C) from the EGA curve (**Figure S.2**) of the unaged polystyrene (PS-0w) reference sample.

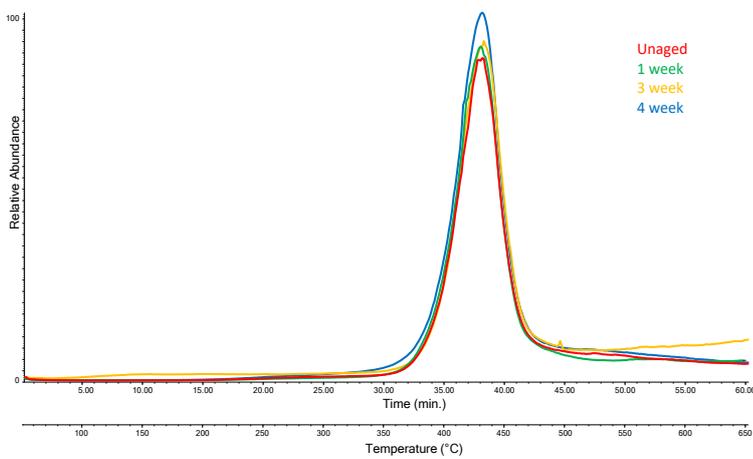


Figure S.4 EGA profiles of PET after different artificial aging times: PET-0w (red), PET-1w (green), PET-3w (yellow), and PET-4w (blue) accelerated aging.

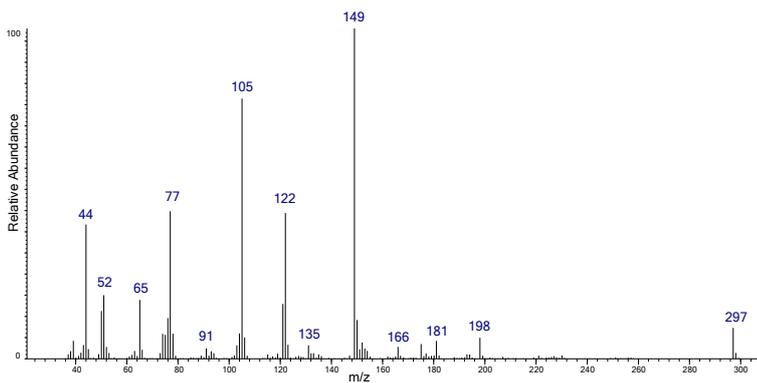


Figure S.5 Average mass spectrum of the peak (from 381 °C to 463 °C) from the EGA curve (**Figure S.4**) of the unaged polyethylene terephthalate (PET-0w) reference sample.

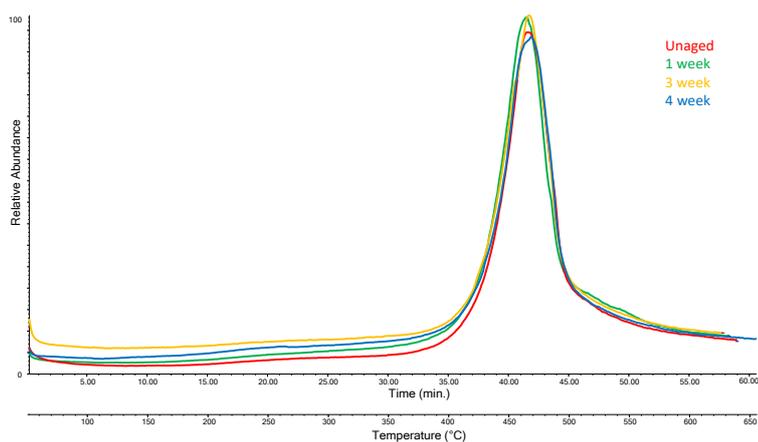


Figure S.6 EGA profiles of LDPE after different artificial aging times: LDPE-0w (red), LDPE-1w (green), LDPE-3w (yellow), and LDPE-4w (blue) accelerated aging.

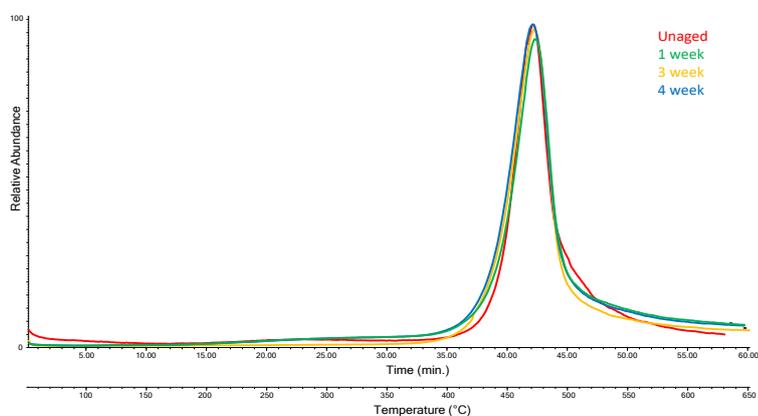


Figure S.7 EGA profiles of HDPE after different artificial aging times: HDPE-0w (red), HDPE-1w (green), HDPE-3w (yellow), and HDPE-4w (blue) accelerated aging.

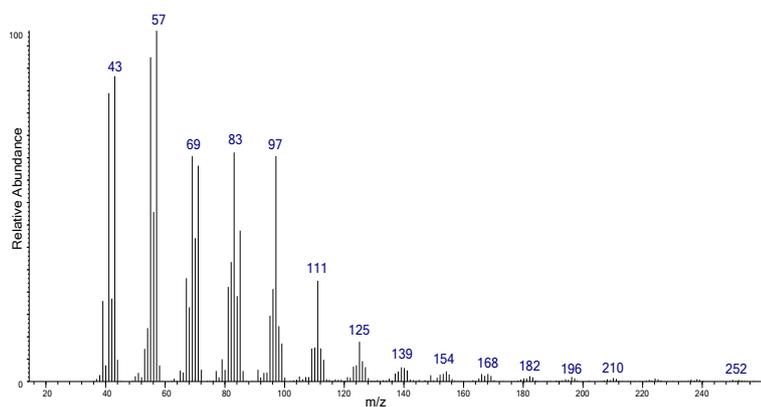


Figure S.8 Average mass spectrum of the peak (from 424 °C to 499 °C) from the EGA curve (**Figure S.6**) of the unaged low-density polyethylene (LDPE-0w) reference sample.

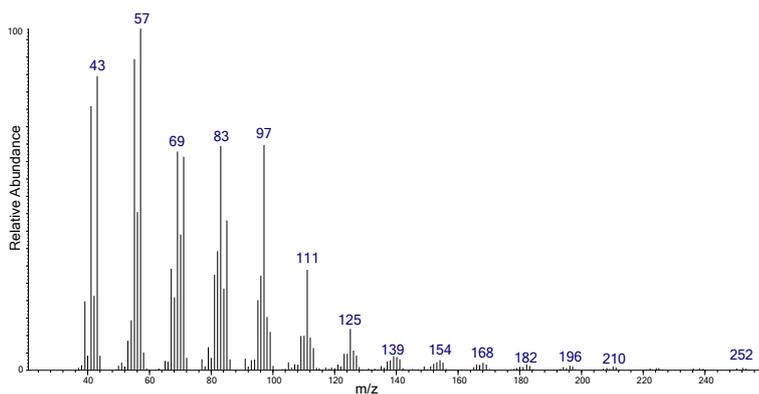


Figure S.9 Average mass spectrum of the peak (from 439 °C to 504 °C) from the EGA curve (**Figure S.7**) of the unaged high-density polyethylene (HDPE-0w) reference sample.

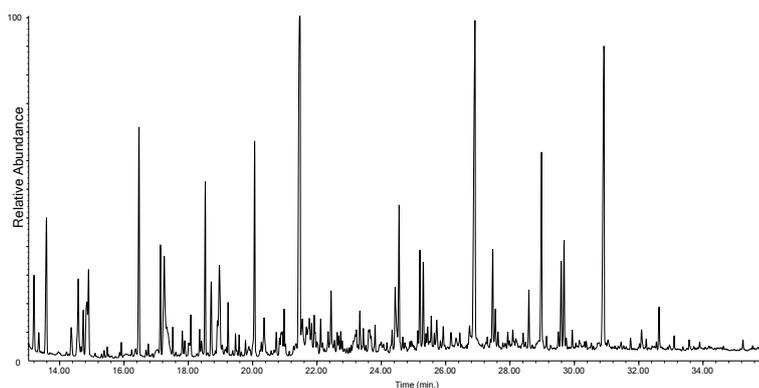


Figure S.10 Chromatogram obtained in the Py(HMDS)-GC-MS analysis of the DCM extract of PP-0w. The list of the main pyrolysis products is reported in **Table S.4**.

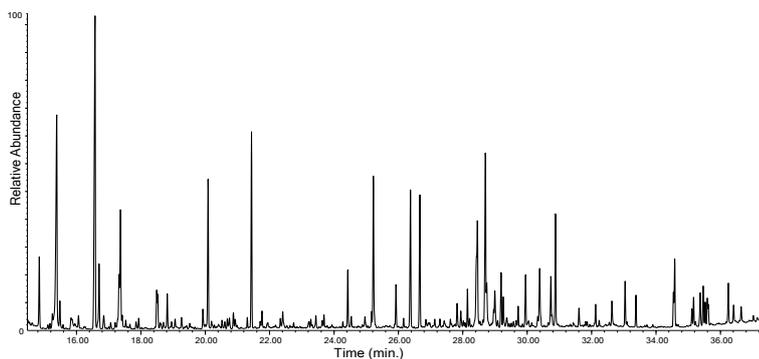


Figure S.11 Chromatogram obtained in the Py(HMDS)-GC-MS analysis of the MeOH extract of PS-0w. List of the main pyrolysis products is reported in **Table S.5**.

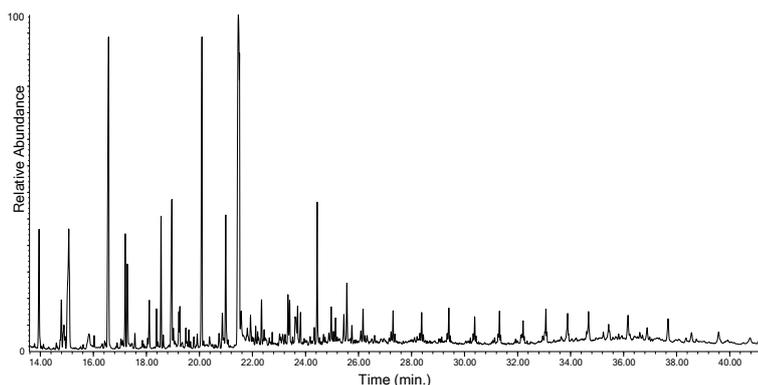


Figure S.12 Chromatogram obtained in the Py(HMDS)-GC-MS analysis of the DCM extract of LDPE-0w. The list of the main pyrolysis products is reported in **Table S.7**.

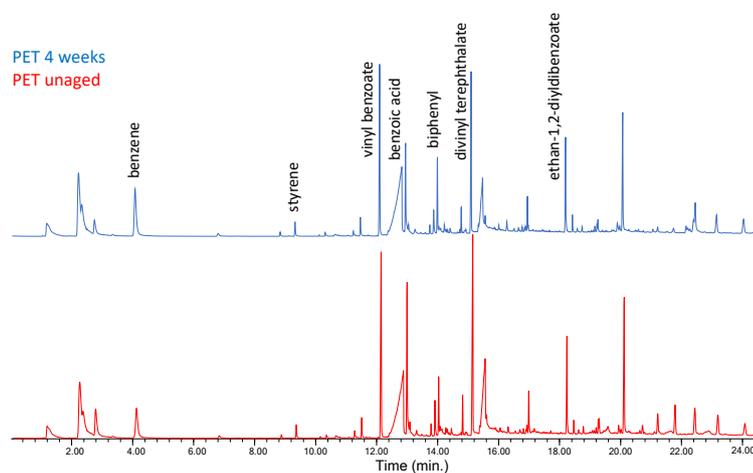


Figure S.13 Chromatograms obtained in the Py-GC-MS analysis of the extraction residues of the PET-0w (red) and PET-4w (blue). The complete list of the main pyrolysis products is reported in **Table S.12** in the Appendix.

Table S.1 Identification of peaks in the chromatogram obtained in the Py-GC-MS analysis of LDPE-4w.

#	t_r	Peak identification	Main ions (m/z)
1	2.7	1-hexene	84, 69, 56, 41
2	3.9	1-heptene	98, 83, 70, 56, 41
3	4.0	heptane	100, 71, 57, 43
4	6.7	1-octene	112, 97, 83, 70, 55, 41
5	6.9	octane	114, 85, 71, 57, 43
6	8.7	1,8-nonadiene	109, 96, 81, 67, 55, 41
7	8.9	1-nonene	126, 97, 83, 69, 56, 41
8	9.0	nonane	128, 99, 85, 71, 57, 43
9	10.1	1,9-decadiene	110, 95, 81, 67, 55, 41
10	10.2	1-decene	140, 111, 97, 83, 70, 55, 41
11	10.35	decane	142, 113, 99, 85, 71, 57, 43
12	11.2	1,10-undecadiene	124, 109, 95, 81, 67, 55, 41
13	11.3	1-undecene	154, 126, 111, 97, 83, 70, 55, 41
14	11.36	undecane	156, 98, 85, 71, 57, 43

15	12.1	1,11-dodecadiene	138, 124, 109, 95, 81, 67, 55 , 41
16	12.15	1-dodecene	168, 140, 125, 111, 97, 83, 69, 55, 41
17	12.2	dodecane	170, 127, 85, 71, 57 , 43
18	12.3	decanal	138, 128, 112, 95, 82, 70, 57, 41
19	12.7	nonanoic acid	158, 129, 115, 98, 85, 73, 57 , 41
20	12.8	1,12-tridecadiene	123, 109, 95, 81, 67, 55 , 41
21	12.9	1-tridecene	125, 111, 97, 83, 69, 55 , 41
22	13.0	tridecane	184, 99, 85, 71, 57 , 43
23	13.03	undecanal	142, 126, 109, 96, 82, 68, 57, 41
24	13.4	decanoic acid	172, 129, 73 , 55, 41
25	13.48	undecanol	126, 111, 97, 85 , 69, 55, 43
26	13.5	1,13-tetradecadiene	123, 109, 96, 81, 67, 55 , 41
27	13.6	1-tetradecene	125, 111, 97, 83, 69, 55 , 41
28	13.66	tetradecane	198, 99, 85, 71, 57 , 43
29	13.7	dodecanal	166, 140, 123, 110, 96, 82, 68, 57 , 41
30	14.05	undecanoic acid	186, 143, 129, 115, 83, 73 , 60, 41
31	14.1	dodecanol	141, 127, 111, 97, 83, 69, 57 , 41
32	14.2	1,14-pentadecadiene	123, 109, 96, 82, 67, 55 , 41
33	14.26	1-pentadecene	210, 125, 111, 97, 83, 69, 55 , 41
34	14.3	pentadecane	141, 127, 113, 99, 85, 71, 57 , 43
35	14.4	tridecanal	180, 154, 124, 110, 96, 82, 68, 57 , 41
36	14.6	dodecanoic acid	200, 157, 129, 115, 98, 85, 73 , 60, 43
37	14.77	tridecanol	182, 155, 141, 125, 111, 97, 83, 69, 55, 43
38	14.8	1,15-hexadecadiene	123, 109, 96, 82, 69, 55 , 41
39	14.87	1-hexadecene	224, 125, 111, 97, 83, 69, 55 , 41
40	14.9	hexadecane	226, 99, 85, 71, 57 , 43
41	15.0	tetradecanal	194, 168, 138, 124, 109, 96, 82, 69, 57 , 41
42	15.2	tridecanoic acid	214, 185, 171, 157, 143, 129, 115, 85, 73 , 60
43	15.37	tetradecanol	169, 125, 111, 97, 83, 69, 55 , 41
44	15.4	1,16-heptadecadiene	137, 123, 109, 96, 82, 69, 55 , 41
45	15.45	1-heptadecene	238, 139, 125, 111, 97, 83 , 69, 55, 41
46	15.5	heptadecane	240, 99, 85, 71, 57 , 43
47	15.6	pentadecanal	208, 182, 109, 96, 82 , 69, 57, 43
48	15.8	tetradecanoic acid	228, 185, 129, 73
49	15.93	pentadecanol	183, 125, 111, 97, 83, 70, 57 , 41
50	15.96	1,17-octadecadiene	123, 109, 96, 82, 69, 55 , 41
51	16.0	1-octadecene	252, 125, 111, 97, 83 , 69, 55, 43
52	16.03	octadecane	254, 99, 85, 71, 57 , 43
53	16.05	2-hexadecanone	240, 111, 97, 85, 71, 58, 43
54	16.1	hexadecanal	222, 123, 109, 96, 82 , 68, 57, 43
55	16.3	pentadecanoic acid	242, 199, 129, 73 , 57
56	16.46	hexadecanol	197, 125, 111, 97, 83, 69, 55 , 41
57	16.5	1,18-nonadecadiene	137, 123, 109, 96, 82, 69, 55 , 41
58	16.53	1-nonadecene	139, 125, 111, 97 , 83, 69, 55, 43
59	16.55	nonadecane	268, 127, 113, 99, 85, 71, 57 , 43
60	16.58	2-heptadecanone	254, 85, 71, 58 , 43
61	16.7	heptadecanal	236, 208, 137, 123, 109, 96, 82 , 68, 57, 43
62	16.8	hexadecanoic acid	256, 213, 129, 73 , 55, 43
63	16.99	1,19-eicosadiene	137, 123, 109, 96, 82, 69, 55 , 41
64	17.0	1-eicosene	139, 125, 111, 97 , 83, 69, 55, 43
65	17.04	eicosane	127, 113, 99, 85, 71, 57 , 43
66	17.09	2-octadecanone	268, 114, 96, 85, 71, 58 , 43

67	17.2	octadecanal	250, 137, 124, 109, 96, 82 , 68, 57, 43
68	17.3	heptadecanoic acid	270, 227, 185, 171, 129, 70 , 55
69	17.47	1,20-heneicosadiene	137, 123, 109, 96, 82, 69, 55 , 41
70	17.5	1-heneicosene	139, 125, 111, 97 , 83, 69, 55, 43
71	17.52	heneicosane	113, 99, 85, 71, 57 , 43
72	17.56	2-nonadecanone	282, 127, 113, 95, 85, 71, 58 , 43
73	17.65	nonadecanal	264, 236, 137, 123, 109, 96, 82 , 69, 57, 43
74	17.8	octadecanoic acid	284, 241, 185, 129, 97, 57
75	17.92	1,21-docosadiene	137, 123, 109, 96, 82, 69, 55 , 41
76	17.95	1-docosene	139, 125, 111, 97 , 83, 69, 57, 43
77	17.97	docosane	310, 99, 85, 71, 57 , 43
78	18.02	2-eicosanone	296, 127, 96, 85, 71, 58 , 43
79	18.1	eicosanal	278, 250, 123, 109, 96, 82 , 69, 57, 43
80	18.2	nonadecanoic acid	298, 255, 129, 83, 69, 57 , 43
81	18.36	1,22-tricosadiene	137, 123, 109, 96, 82, 69, 55 , 41
82	18.39	1-tricosene	322, 125, 111, 97 , 83, 69, 57, 43
83	18.40	tricosane	324, 113, 97, 85, 71, 57 , 43
84	18.46	2-heneicosanone	310, 127, 109, 96, 82, 71, 59 , 43
85	18.5	heneicosanal	292, 138, 123, 111, 96, 82 , 69, 57, 43
86	18.78	1,23-tetracosadiene	334, 137, 123, 109, 96, 82, 69, 55 , 41
87	18.8	1-tetracosene	336, 139, 125, 111, 97 , 83, 69, 57, 43
88	18.9	2-docosanone	324, 309, 109, 96, 82, 71, 58 , 43
89	19.0	docosanal	306, 250, 138, 123, 109, 96, 82 , 69, 57, 43
90	19.2	1-pentacosene	350, 139, 125, 111, 97 , 83, 69, 57, 43
91	19.4	tricosanal	320, 137, 124, 109, 96, 82 , 68, 57, 43
92	19.6	1-hexacosene	364, 139, 125, 111, 97, 83, 69, 57 , 43
93	19.8	tetracosanal	334, 138, 123, 109, 96, 82 , 69, 57, 43
94	20.0	heptacosane	380, 125, 111, 97, 85, 71, 57 , 43
95	20.2	pentacosanal	348, 125, 111, 97, 83, 71, 57 , 43
96	20.4	octacosane	125, 111, 97, 83, 71, 57 , 43
97	20.6	hexacosanal	362, 123, 109, 96, 82, 69, 57 , 43
98	20.9	nonacosane	139, 125, 111, 97, 83, 69, 57 , 43
99	21.1	heptacosanal	376, 123, 111, 96, 82, 71, 57 , 43
100	21.4	triacontane	139, 125, 111, 97, 83, 71, 57 , 43
101	22.0	hentriacontane	139, 125, 111, 97, 83, 71, 57 , 43
102	22.7	dotriacontane	125, 111, 97, 85, 71, 57 , 43

Table S.2 Identification of peaks in the chromatogram obtained in the Py-GC-MS analysis of HDPE-0w.

#	t _r	Peak identification	Main ions (<i>m/z</i>)
1	2.7	1-hexene	84, 69, 56, 41
2	4.0	1-heptene	98, 83, 70, 56 , 41
3	4.1	heptane	100, 71, 57, 43
4	6.8	1-octene	112, 97, 83, 70, 55 , 41
5	7.0	octane	114, 85, 71, 57, 43
6	8.7	1,8-nonadiene	109, 96, 81, 67 , 55, 41
7	8.9	1-nonene	126, 97, 83, 69, 56 , 41
8	9.0	nonane	128, 99, 85, 71, 57, 43

9	10.2	1,9-decadiene	110, 95, 81, 67, 55 , 41
10	10.3	1-decene	140, 111, 97, 83, 70, 55 , 41
11	10.4	decane	142, 117, 99, 85, 71, 57 , 43
12	11.2	1,10-undecadiene	124, 109, 95, 81, 67, 55 , 41
13	11.3	1-undecene	154, 126, 111, 97, 83, 70, 55 , 43
14	11.4	undecane	156, 98, 85, 71, 57 , 43
15	12.1	1,11-dodecadiene	138, 124, 109, 95, 81, 67, 55 , 41
16	12.16	1-dodecene	168, 140, 125, 111, 97, 83, 69, 55 , 41
17	12.2	dodecane	170, 128, 85, 71, 57 , 43
18	12.3	decanal	138, 128, 112, 95, 82, 68, 55 , 41
19	12.87	1,12-tridecadiene	123, 109, 95, 81, 67, 55 , 41
20	12.9	1-tridecene	125, 111, 97, 83, 69, 55 , 41
21	13.0	tridecane	184, 99, 85, 71, 57 , 43
22	13.05	undecanal	152, 126, 109, 96, 82, 68, 57 , 41
23	13.5	1,13-tetradecadiene	123, 109, 96, 81, 67, 55 , 41
24	13.6	1-tetradecene	125, 111, 97, 83, 69, 55 , 41
25	13.7	tetradecane	198, 99, 85, 71, 57 , 43
26	13.75	dodecanal	166, 140, 123, 110, 96, 82, 68, 57 , 41
27	14.2	1,14-pentadecadiene	123, 109, 96, 81, 67, 55 , 41
28	14.27	1-pentadecene	210, 125, 111, 97, 83, 69, 55 , 41
29	14.3	pentadecane	212, 113, 99, 85, 71, 57 , 43
30	14.4	tridecanal	180, 154, 124, 110, 96, 82, 68, 57 , 43
31	14.8	1,15-hexadecadiene	123, 109, 96, 82, 67, 55 , 41
32	14.88	1-hexadecene	224, 125, 111, 97, 83, 69, 55 , 41
33	14.9	hexadecane	226, 99, 85, 71, 57 , 43
34	15.0	tetradecanal	194, 168, 138, 110, 96, 82, 69, 57 , 41
35	15.4	1,16-heptadecadiene	137, 123, 109, 96, 82, 69, 55 , 41
36	15.46	1-heptadecene	238, 139, 125, 111, 97, 83, 69, 55 , 41
37	15.5	heptadecane	240, 99, 85, 71, 57 , 43
38	15.6	pentadecanal	208, 180, 110, 96, 82, 69, 57 , 41
39	15.9	1,17-octadecadiene	123, 109, 96, 82, 69, 55 , 41
40	16.0	1-octadecene	252, 125, 111, 97, 83, 69, 55 , 41
41	16.04	octadecane	254, 99, 85, 71, 57 , 43
42	16.1	hexadecanal	222, 123, 109, 96, 82, 69, 57 , 43
43	16.5	1,18-nonadecadiene	137, 123, 109, 96, 82, 69, 55 , 41
44	16.54	1-nonadecene	139, 125, 111, 97, 83, 69, 55 , 43
45	16.6	nonadecane	268, 127, 113, 99, 85, 71, 57 , 43
46	16.7	heptadecanal	236, 208, 137, 123, 110, 96, 82 , 68, 57, 41
47	17.0	1,19-eicosadiene	137, 123, 109, 96, 82, 69, 55 , 41
48	17.03	1-eicosene	139, 125, 111, 97 , 83, 69, 55, 43
49	17.06	eicosane	127, 113, 99, 85, 71, 57 , 43
50	17.2	octadecanal	250, 137, 124, 109, 96, 82 , 68, 57, 43
51	17.4	1,20-heneicosadiene	137, 123, 109, 96, 82, 69, 55 , 41
52	17.5	1-heneicosene	139, 125, 111, 97 , 83, 69, 55, 43
53	17.53	heneicosane	113, 99, 85, 71, 57 , 43
54	17.7	nonadecanal	264, 202, 137, 124, 110, 96, 82 , 68, 57, 43
55	17.94	1,21-docosadiene	149, 137, 123, 109, 96, 82, 69, 55 , 41
56	17.96	1-docosene	139, 125, 111, 97 , 83, 69, 55, 43
57	17.98	docosane	310, 97, 85, 71, 57 , 43
58	18.1	eicosanal	278, 250, 124, 109, 96, 82 , 68, 57, 43
59	18.3	1,22-tricosadiene	137, 123, 109, 96, 82, 69, 55 , 41
60	18.40	1-tricosene	322, 125, 111, 97 , 83, 69, 55, 43

61	18.41	tricosane	324, 111, 97, 85, 71, 57 , 43
62	18.5	heneicosanal	292, 138, 123, 110, 96, 82 , 68, 57, 43
63	18.8	1,23-tetracosadiene	334, 137, 123, 109, 96, 82, 69, 55 , 41
64	18.81	1-tetracosene	336, 139, 125, 111, 97 , 83, 69, 55, 43
65	19.0	docosanal	306, 251, 138, 123, 110, 96, 82 , 68, 57, 43
66	19.2	1-pentacosene	350, 139, 125, 111, 97 , 83, 69, 57, 43
67	19.4	tricosanal	320, 138, 124, 110, 96, 82 , 68, 57, 43
68	19.6	1,25-hexacosadiene	362, 139, 125, 111, 97, 83, 69, 57 , 43
69	19.8	unknown	297 , 149, 105, 77

Table S.3 Identification of peaks in the chromatogram obtained in the Py-GC-MS analysis of HDPE-4w.

#	t _r	Peak identification	Main ions (<i>m/z</i>)
1	2.7	1-hexene	84, 69, 56, 41
2	4.0	1-heptene	98, 83, 70, 56 , 41
3	4.1	heptane	100, 71, 57, 43
4	6.7	1-octene	112, 97, 83, 70, 55 , 41
5	6.9	octane	114, 85, 71, 57, 43
6	8.7	1,8-nonadiene	109, 96, 81, 67 , 55, 41
7	8.9	1-nonene	126, 97, 83, 69, 56 , 41
8	9.0	nonane	128, 99, 85, 71, 57, 43
9	10.1	1,9-decadiene	110, 95, 81, 67, 55 , 41
10	10.2	1-decene	140, 111, 97, 83, 70, 55, 41
11	10.34	decane	142, 113, 99, 85, 71, 57 , 43
12	11.2	1,10-undecadiene	124, 109, 95, 81, 67, 55, 41
13	11.3	1-undecene	154, 126, 111, 97, 83, 70, 55 , 41
14	11.36	undecane	156, 98, 85, 71, 57 , 43
15	11.4	nonanal	124, 114, 98, 82, 70, 57 , 41
16	12.1	1,11-dodecadiene	138, 124, 109, 95, 81, 67, 55 , 41
17	12.15	1-dodecene	168, 140, 125, 111, 97, 83, 69, 55, 41
18	12.2	dodecane	170, 128, 85, 71, 57 , 43
19	12.3	decanal	138, 128, 112, 95, 82, 70, 57, 41
20	12.7	nonanoic acid	158, 129, 115, 98, 85 , 73, 60, 41
21	12.8	1,12-tridecadiene	123, 109, 95, 81, 67, 55 , 41
22	12.9	1-tridecene	125, 111, 97, 83, 69, 55, 41
23	13.0	tridecane	184, 99, 85, 71, 57 , 43
24	13.04	undecanal	142, 126, 109, 96, 82, 68, 57, 41
25	13.4	decanoic acid	172, 129, 73 , 60, 41
26	13.48	undecanol	126, 111, 97, 85 , 69, 55, 41
27	13.5	1,13-tetradecadiene	123, 109, 95, 81, 67, 55 , 41
28	13.6	1-tetradecene	125, 111, 97, 83, 69, 55 , 41
29	13.66	tetradecane	198, 99, 85, 71, 57 , 43
30	13.7	dodecanal	166, 140, 123, 110, 96, 82, 68, 57 , 41
31	14.06	undecanoic acid	186, 143, 129, 115, 85, 73 , 60, 41
32	14.1	dodecanol	141, 127, 111, 97, 83, 69, 55 , 43
33	14.2	1,14-pentadecadiene	123, 109, 96, 81, 67, 55 , 41
34	14.26	1-pentadecene	210, 125, 111, 97, 83, 69, 55 , 41
35	14.3	pentadecane	141, 127, 113, 99, 85, 71, 57 , 43
36	14.4	tridecanal	180, 154, 124, 110, 96, 82, 69, 57 , 41
37	14.6	dodecanoic acid	200, 157, 129, 115, 101, 85, 73 , 60, 43

38	14.77	tridecanol	182, 155, 141, 125, 111, 97, 83, 69, 55, 43
39	14.8	1,15-hexadecadiene	123, 109, 96, 82, 67, 55 , 41
40	14.88	1-hexadecene	224, 125, 111, 97, 83, 69, 55 , 41
41	14.9	hexadecane	226, 99, 85, 71, 57 , 43
42	15.0	tetradecanal	194, 168, 138, 124, 109, 96, 82, 69, 57 , 41
43	15.2	tridecanoic acid	214, 185, 171, 157, 143, 129, 115, 87, 73 , 60
44	15.36	tetradecanol	169, 125, 111, 97, 83, 69, 55 , 43
45	15.4	1,16-heptadecadiene	137, 123, 109, 96, 82, 69, 55 , 41
46	15.45	1-heptadecene	238, 139, 125, 111, 97, 83, 69, 55 , 41
47	15.5	heptadecane	240, 99, 85, 71, 57 , 43
48	15.6	pentadecanal	208, 182, 109, 96, 82, 69, 57 , 41
49	15.8	tetradecanoic acid	228, 185, 129, 73
50	15.93	pentadecanol	183, 125, 111, 97, 83, 69, 57 , 41
51	15.96	1,17-octadecadiene	123, 109, 96, 82, 69, 55 , 41
52	16.0	1-octadecene	252, 125, 111, 97, 83, 69, 55 , 41
53	16.04	octadecane	254, 99, 85, 71, 57 , 43
54	16.06	2-hexadecanone	240, 111, 97, 85, 71, 58 , 43
55	16.1	hexadecanal	222, 123, 109, 96, 82, 69, 57 , 41
56	16.3	pentadecanoic acid	242, 199, 129, 73 , 60
57	16.46	hexadecanol	197, 125, 111, 97, 83, 69, 55 , 43
58	16.5	1,18-nonadecadiene	137, 123, 109, 96, 82, 69, 55 , 41
59	16.53	1-nonadecene	139, 125, 111, 97, 83, 69, 55 , 43
60	16.55	nonadecane	268, 127, 113, 99, 85, 71, 57 , 43
61	16.58	2-heptadecanone	254, 85, 71, 58 , 43
62	16.7	heptadecanal	236, 208, 137, 123, 109, 96, 82 , 69, 57, 43
63	16.8	hexadecanoic acid	256, 213, 129, 73 , 60
64	16.99	1,19-eicosadiene	137, 123, 109, 96, 82, 69, 55 , 41
65	17.0	1-eicosene	139, 125, 111, 97 , 83, 69, 55, 43
66	17.04	eicosane	127, 113, 99, 85, 71, 57 , 43
67	17.09	2-octadecanone	268, 109, 96, 85, 71 , 58, 43
68	17.2	octadecanal	250, 137, 123, 109, 96, 82, 69, 57 , 43
69	17.3	heptadecanoic acid	270, 227, 185, 171, 129, 73 , 60
70	17.4	1,20-heneicosadiene	137, 123, 109, 96, 82, 69, 55 , 41
71	17.5	1-heneicosene	139, 125, 111, 97 , 83, 69, 55, 43
72	17.52	heneicosane	111, 97, 85, 71, 57 , 43
73	17.56	2-nonadecanone	282, 127, 111, 97, 85, 71, 58 , 43
74	17.7	nonadecanal	264, 236, 137, 123, 109, 96, 82 , 69, 57, 43
75	17.8	octadecanoic acid	284, 241, 185, 129, 73 , 60
76	17.92	1,21-docosadiene	137, 123, 109, 96, 82, 69, 55 , 41
77	17.95	1-docosene	139, 125, 111, 97 , 83, 69, 55, 43
78	17.97	docosane	310, 97, 85, 71, 57 , 43
79	18.02	2-eicosanone	297, 127, 96, 85, 71, 58 , 43
80	18.1	eicosanal	278, 250, 123, 109, 96, 82 , 69, 57, 43
81	18.2	nonadecanoic acid	298, 255, 129, 85, 73
82	18.37	1,22-tricosadiene	137, 123, 111, 97, 83, 69, 55 , 41
83	18.39	1-tricosene	322, 125, 111, 97 , 83, 69, 57, 43
84	18.40	tricosane	324, 111, 97, 85, 71, 57 , 43
85	18.46	2-heneicosanone	310, 124, 109, 96, 85, 71, 58, 43
86	18.5	heneicosanal	292, 137, 123, 111, 96, 82 , 69, 57 , 43
87	18.78	1,23-tetracosadiene	334, 137, 123, 111, 97, 83, 69, 55 , 43
88	18.8	1-tetracosene	336, 139, 125, 111, 97 , 83, 69, 57, 43
89	18.9	2-docosanone	324, 309, 109, 96, 82, 71, 59 , 43

90	19.0	docosanal	306, 250, 137, 125, 111, 97, 82, 71, 57 , 43
91	19.2	1-pentacosene	350, 139, 125, 111, 97, 83, 69, 57 , 43
92	19.4	tricosanal	320, 137, 123, 111, 97, 82, 69, 57 , 43
93	19.6	1,25-hexacosadiene	362, 139, 125, 111, 97, 83, 69, 55 , 43
94	19.7	tetracosanal	334, 138, 123, 109, 96, 82 , 68, 57, 43
95	20.0	heptacosane	380, 125, 111, 97, 85, 71, 57 , 43
96	20.2	pentacosanal	348, 123, 111, 97, 83, 69, 57 , 43
97	20.4	octacosane	125, 111, 97, 85, 71, 57 , 43
98	20.6	hexacosanal	362, 123, 111, 96, 82, 69, 57 , 43
99	20.9	nonacosane	139, 125, 111, 97, 83, 71, 57 , 43
100	21.1	heptacosanal	376, 123, 111, 96, 82, 71, 57 , 43
101	21.4	triacontane	139, 125, 111, 97, 83, 71, 57 , 43

Table S.4 List of the main pyrolysis products in the chromatogram obtained in the Py(HMDS)-GC-MS analysis of the DCM extract of PP-0w (**Figure S.10**).

#	t _r	Peak identification	Main ions (<i>m/z</i>)
1	13.2	2,4-dimethyl-1-heptene	165, 149, 126, 83, 70 , 55
2	16.5	HMDS unknown	222 , 206, 190, 176, 132, 74
3	17.2	hexamethyl-cyclotrisiloxane	207 , 191, 96
4	17.8	octamethyl-cyclotetrasiloxane	281 , 265, 149, 191, 133, 73
5	17.9	p- tolypentamethyl-disiloxane	238, 223 , 207, 149, 104, 73
6	18.4	decamethyl-tetrasiloxane	295, 207 , 73
7	18.5	unknown	236 , 204, 190, 132, 73
8	18.7	unknown	177, 162 , 134, 100, 73
9	19.0	unknown	222, 206, 193, 130 , 116, 100, 73
10	19.2	unknown	280, 266 , 192, 125
11	20.1	2,2,3,3,7,7,8,8-octamethyl-4,6-dioxa-5-aza-2,3,7,8-tetrasilanonane	294, 206 , 190, 73
12	21.4	unknown	293 , 205, 146, 130, 73
13	23.4	tetradecamethyl-hexasiloxane	443, 355, 281, 267, 221, 147, 73
14	24.5	decanoic acid, trimethylsilyl ester	244, 229 , 145, 129, 117, 73
15	24.7	tetradecamehylcycloheptasiloxane	503, 415, 341, 327, 281, 147, 73
16	25.2	1-cyclohexyldimethylsilyloxyundec-2-ene	227 , 143, 129, 75

Table S.5 List of the main pyrolysis products in the chromatogram obtained in the Py(HMDS)-GC-MS analysis of the MeOH extract of PS-0w (**Figure S.11**).

#	t _r	Peak identification	Main ions (<i>m/z</i>)
1	14.8	ethylbenzene	106, 91 , 77, 65, 51
2	15.4	styrene	104 , 89, 78, 63, 51
3	15.5	silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-	146 , 130, 100, 73, 59
4	16.0	benzene, (1-methylethyl)-	120, 105 , 91, 77, 51
5	16.6	unknown	175, 146, 132 , 115, 102
6	16.7	HMDS unknown	222 , 206, 190, 132, 74
7	17.3	HMDS unknown	220 , 207, 132, 73
8	17.4	cyclotrisiloxane, hexamethyl-	207 , 191, 133, 96
9	17.9	cyclotetrasiloxane, octamethyl-	281 , 265, 207, 191, 133, 73
10	18.5	tetrasiloxane, decamethyl-	295, 207 , 191, 73

11	18.6	silane, trimethylphenoxy-propanoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	166, 151 , 135, 91, 77
12	18.8	ester	191, 147 , 133, 117, 73
13	19.9	cyclotetrasiloxane, octamethyl-4,6-dioxa-5-aza-2,3,7,8-tetrasilanonane-2,2,3,3,7,7,8,8-	281 , 265, 249, 133, 73
14	20.1	octamethyl-	294, 206 , 190, 130, 73
15	20.9	cyclopentasiloxane, decamethyl	355, 267, 251, 187, 73
16	21.3	pentasiloxane, dodecamethyl-	369, 353, 281 , 265, 249, 207, 147, 43
17	21.4	unknown	293 , 205, 189, 146, 130, 73
18	22.7	cyclohexasiloxane, dodecamethyl-	429, 341, 207, 147, 73
19	23.4	hexasiloxane, tetradecamethyl-	443, 355, 281, 267, 221, 147, 73
20	25.2	HMDS unknown	265, 250, 146 , 132, 73
21	25.9	propane-1,2-diyldibenzen	196, 115, 105 , 91, 77
22	26.4	1-pentene-2,4-diyldibenzen	165, 105 , 91, 77
23	26.7	benzene, 1,1'-(1,2-dimethyl-1,2-ethanediyl)bis-	210, 105 , 91, 77
24	27.8	3-butene-1,3-diyldibenzene (styrene dimer)	208, 193, 130, 115, 104, 91 , 77, 65
25	28.4	1H-indene, 2-phenyl-	192 , 165, 115, 91
26	28.5	naphthalene, 1,2,3,4-tetrahydro-1-phenyl-	208 , 191, 180, 165, 152, 130, 115, 91
27	28.7	naphthalene, 1,2-dihydro-4-phenyl-	206 , 191, 128, 115, 91
28	28.8	anthracene	178 , 152, 89, 76
29	29.9	unknown	299, 281, 237, 163 , 135, 103, 73
30	30.4	fluoranthene, 1,2,3,10b-tetrahydro-	206, 190, 178 , 165, 152, 89, 76
31	30.7	unknown	161, 147, 117, 103, 73
32	30.9	hexadecanoic acid, trimethylsilyl ester	328, 313, 145, 129, 117, 73
33	32.6	octadecanoic acid, trimethylsilyl ester	341, 145, 129, 117, 73
34	33.0	unknown	161, 147, 133, 117, 103, 87, 73
35	34.6	5-hexene-1,3,5-triyltribenzene (styrene trimer)	312, 207, 194, 117, 91 , 77

Table S.6 List of the main pyrolysis products in the chromatogram obtained in the Py(HMDS)-GC-MS analysis of the DCM extract of LDPE-4w (**Figure 14**).

#	t _r	Peak identification	Main ions (<i>m/z</i>)
1	15.2	butanoic acid, trimethylsilyl ester	145, 117, 75
2	15.4	silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-	146 , 130, 100, 73, 59
3	16.2	2-butenic acid, trimethylsilyl ester	143 , 99, 75
4	16.5	unknown	175, 146, 132 , 115, 73
5	16.6	HMDS unknown	222 , 206, 190, 176, 132, 74
6	16.7	HMDS unknown	237, 222 , 206, 190, 176, 132, 74
7	17.0	4-pentenoic acid, trimethylsilyl ester	157, 117, 75
8	17.2	pentanoic acid, trimethylsilyl ester	159, 145, 132, 117, 75
9	17.3	HMDS unknown	220 , 207, 132, 73
10	17.4	hexamethyl-cyclotrisiloxane	207 , 191, 96
11	17.8	3-butenic, -methyl-, trimethylsilyl ester	172, 157, 113, 82, 75
12	17.9	cyclotetrasiloxane, octamethyl-	281 , 265, 249, 207, 191, 133, 73
13	18.5	tetrasiloxane, decamethyl-	295, 207 , 191, 73
14	18.7	hexenoic acid, trimethylsilyl ester	171, 129, 117, 75
15	18.8	propanoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester	191, 147 , 133, 117, 73
16	19.0	hexanoic acid, trimethylsilyl ester	173, 145, 131, 117, 75
17	19.1	acetic acid, [(trimethylsilyl)oxy]-, trimethylsilyl ester	205, 177, 147 , 133, 73
18	19.4	undecane	156, 113, 98, 85, 71, 57

19	20.0	pentanoic acid, 4-oxo, trimethylsilyl ester	173, 145, 131, 75
20	20.1	4,6-dioxa-5-aza-2,3,7,8-tetrasilanonane-2,2,3,3,7,7,8,8-octamethyl-	294, 206 , 190, 130, 73
21	20.2	propanoic acid, 3-[(trimethylsilyloxy)-, trimethylsilyl ester	219, 177, 147 , 133, 116, 73
22	20.3	heptenoic acid, trimethylsilyl ester	185, 129, 117, 75
24	20.5	heptanoic acid, trimethylsilyl ester	187, 131, 117, 75
25	20.7	pentasiloxane, dodecamethyl-	369, 281, 207, 147, 73
26	20.8	1-dodecene	168, 111, 97, 83, 69, 55
27	21.3	pentasiloxane, dodecamethyl-	369, 353, 281 , 265, 249, 207, 147, 43
28	21.4	unknown	293 , 277, 205, 189, 146, 130,
29	21.7	benzoic acid, trimethylsilyl ester	194, 179 , 135, 105, 77, 51
30	21.8	octenoic acid, trimethylsilyl ester	199, 129, 117, 75
31	21.9	octanoic acid, trimethylsilyl ester	201, 145, 129, 117, 75
32	22.3	1-tridecene	182, 154, 125, 111, 97, 83, 69, 55
33	22.7	butanedioic acid, bis(trimethylsilyl ester)	247, 172, 147 , 129, 73
34	22.8	butanedioic acid, methyl-, bis(trimethylsilyl) ester	261, 232, 217, 186, 147 , 73
35	23.2	cyclohexasiloxane, dodecamethyl-	429, 341, 147, 73
36	23.2	nonenoic acid, trimethylsilyl ester	215 , 145, 129, 117, 73
37	23.3	nonanoic acid, trimethylsilyl ester	230, 215 , 145, 129, 117, 73
38	23.4	hexasiloxane, tetradecamethyl-	443, 355, 281, 267, 221, 147, 73
39	23.7	1-tetradecene	196, 141, 125, 111, 97, 83, 69, 55
40	23.9	pentanedioic acid, bis(trimethylsilyl) ester	261, 233, 204, 158, 147 , 129, 116, 97, 73
41	24.4	decenoic acid, trimethylsilyl ester	227, 145, 129, 117, 75
42	24.5	decanoic acid, trimethylsilyl ester	229 , 145, 129, 117, 73
43	24.9	1-pentadecene	210, 140, 125, 111, 83, 69, 55
44	25.0	pentadecane	212, 141, 127, 113, 99, 85, 71, 57
45	25.2	hexanedioic acid, bis(trimethylsilyl) ester	275, 217, 204, 172, 147, 129, 111, 73
46	25.6	undecenoic acid, trimethylsilyl ester	241, 145, 129, 117, 96, 75
47	25.7	undecanoic acid, trimethylsilyl ester	243 , 145, 129, 117, 95, 73
48	26.2	1-hexadecene	224, 125, 111, 97, 83, 69, 55
49	26.3	hexadecane	226, 127, 113, 99, 85, 71, 57
50	26.4	heptanedioic acid, bis(trimethylsilyl) ester	289, 217, 204, 186, 155, 147, 125, 97, 73
51	26.8	dodecenoic acid, trimethylsilyl ester	255, 201, 145, 129, 117, 73
52	26.9	dodecanoic acid, trimethylsilyl ester	257 , 201, 145, 129, 117, 73
53	27.3	1-heptadecene	238, 125, 111, 97, 83, 69, 55
54	27.4	octanedioic acid, bis(trimethylsilyl) ester	303, 217, 187, 169, 147, 129, 117, 73
55	27.8	tridecenoic acid, trimethylsilyl ester	269, 145, 129, 117, 73
56	27.9	tridecanoic acid, trimethylsilyl ester	271, 145, 129, 117, 73
57	28.4	1-octadecene	252, 139, 125, 111, 97, 83, 69, 55
58	28.5	nonanedioic acid, bis(trimethylsilyl) ester	317, 217, 201, 147, 129, 117, 97, 73
59	28.9	tetradecenoic acid, trimethylsilyl ester	283, 145, 129, 117, 73
60	29.0	tetradecanoic acid, trimethylsilyl ester	300, 285 , 145, 132, 117, 73
61	29.4	1-nonadecene	266, 139, 125, 111, 97, 83, 69, 55
62	29.5	decanedioic acid, bis(trimethylsilyl) ester	331, 315, 215, 204, 185, 147, 129, 117, 73
63	29.8	pentadecenoic acid, trimethylsilyl ester	297, 145, 129, 117, 73
64	29.9	pentadecanoic acid, trimethylsilyl ester	299, 145, 129, 117, 73
65	30.4	eicosane	282, 127, 113, 99, 85, 71, 57
66	30.5	undecanedioic acid, bis(trimethylsilyl) ester	345, 317, 129, 117, 73
67	30.8	hexadecenoic acid, trimethylsilyl ester	311, 145, 129, 117, 73
68	30.9	hexadecanoic acid, trimethylsilyl ester	313 , 145, 129, 117, 73

69	31.2	1,20-heneicosadiene	123, 109, 96, 82, 69, 55
70	31.3	1-heneicosene	139, 125, 111, 97 , 83, 69, 55
71	31.4	heneicosane	296, 127, 113, 99, 85, 71, 57
72	31.7	heptadecenoic acid, trimethylsilyl ester	325, 145, 129, 117, 73
73	31.8	heptadecanoic acid, trimethylsilyl ester	342, 327 , 201, 145, 132, 117, 73
74	32.1	1,21-docosadiene	306, 123, 109, 96, 82, 69, 55
75	32.2	1-docosene	139, 125, 111, 97 , 83, 69, 55
76	32.3	docosane	127, 113, 99, 85, 71, 57
77	32.5	2,2-bis[(4-trimethylsiloxy)phenyl]propane	372, 357 , 207, 73
78	32.6	octadecenoic acid, trimethylsilyl ester	339, 145, 129, 117 , 97, 75
79	32.7	octadecanoic acid, trimethylsilyl ester	341, 145, 129, 117, 73
80	33.0	1,22-tricosadiene	137, 123, 109, 96, 82, 69, 55
81	33.06	1-tricosene	322, 125, 111, 97 , 83, 69, 55
82	33.1	tricosane	324, 113, 97, 85, 71, 57
83	33.4	nonadecenoic acid, trimethylsilyl ester	353 , 145, 129, 117, 97, 75
84	33.5	nonadecanoic acid, trimethylsilyl ester	355, 145, 132, 117 , 97, 73
85	33.8	1,23-tetracosadiene	334, 137, 123, 109, 96, 83, 69, 55
86	33.9	1-tetracosene	336, 139, 125, 111, 97, 83, 69, 57
87	33.91	tetracosane	338, 127, 113, 99, 85, 71, 57
88	34.2	eicosenoic acid, trimethylsilyl ester	367, 145, 129, 117, 97, 73
89	34.3	eicosanoic acid, trimethylsilyl ester	384, 369 , 341, 201, 145, 132, 117, 73
90	34.5	hexanedecandioic acid, bis(trimethylsilyl) ester	415, 229, 217, 204, 129, 117, 73
91	34.6	1,24-pentacosadiene	137, 123, 109, 96, 82, 69, 55
92	34.7	1-pentacosene	139, 125, 111, 97 , 83, 69, 57
93	34.9	heneicosenoic acid, trimethylsilyl ester	381, 145, 129, 117, 73
94	35.0	heneicosanoic acid, trimethylsilyl ester	398, 383, 145, 132, 117 , 73
95	35.3	heptanedecanedioic acid, bis(trimethylsilyl) ester	429, 313, 217, 204, 129, 117, 73
96	35.4	1-hexacosene	139, 125, 111, 97, 83, 69, 57
97	35.7	docosenoic acid, trimethylsilyl ester	395, 145, 129, 117, 73
98	35.8	docosanoic acid, trimethylsilyl ester	412, 397, 145, 129, 117, 97, 73
99	36.0	octanedecanedioic acid, bis(trimethylsilyl) ester	443, 327, 217, 204, 129, 117, 73
100	36.1	1-heptacosene	139, 125, 111, 97 , 83, 69, 57
101	36.4	tricosenoic acid, trimethylsilyl ester	409, 145, 129, 117, 97, 73
102	36.5	tricosanoic acid, trimethylsilyl ester	411, 145, 129, 117, 73
103	36.9	1-octacosene	139, 125, 111, 97, 83, 69, 57
104	37.2	tetracosanoic acid, trimethylsilyl ester	425, 145, 129, 117, 97, 73
105	37.7	1-nonacosene	139, 125, 111, 97, 83, 69, 57
106	38.0	pentacosanoic acid, trimethylsilyl ester	454, 439, 145, 132, 117 , 73
107	38.5	1-triacontene	139, 125, 111, 97, 83, 69, 57
108	38.9	hexacosanoic acid, trimethylsilyl ester	468, 453, 145, 132, 117 , 73
109	39.6	1-hentriacontene	139, 125, 111, 97, 83, 71, 57
110	40.0	heptacosanoic acid, trimethylsilyl ester	482, 467, 369, 145, 129, 117 , 73
111	40.7	1-dotriacontene	139, 125, 111, 97, 83, 71, 57
112	41.3	octacosanic acid, trimethylsilyl ester	496, 481, 145, 129, 117, 97, 73
113	42.2	1-tritriacontene	139, 125, 111, 97, 83, 69, 57
114	42.8	nonacosanoic acid, trimethylsilyl ester	510, 495, 145, 132, 117 , 73
115	43.9	1-tetracontene	139, 125, 111, 97, 83, 71, 57
116	44.6	triacontanoic acid, trimethylsilyl acid	524, 509, 145, 132, 117 , 97, 73
117	45.9	1-pentatriacontene	139, 125, 111, 97, 83, 71, 57
118	46.8	hentriacontanoic acid, trimethylsilyl ester	538, 523, 145, 132, 117, 97, 73
119	47.9	1-hexatriacontene	139, 125, 111, 97, 83, 71, 57
120	48.7	dotriacontanoic acid, trimethylsilyl ester	552, 537, 145, 129, 117, 73

121	50.9	tritriacontanoic acid, trimethylsilyl ester	556, 551, 145, 132, 117, 73
122	53.5	tetratriacontanoic acid, trimethylsilyl ester	580, 565, 145, 132, 117, 73
123	56.7	pentatriacontanoic acid, trimethylsilyl ester	594, 579, 145, 132, 117, 73

Table S.7 List of the main pyrolysis products in the chromatogram obtained in the Py(HMDS)-GC-MS analysis of the DCM extract of LDPE-0w (**Figure S.12**).

#	t _r	Peak identification	Main ions (<i>m/z</i>)
1	13.4	unknown	164 , 134, 118, 74
2	14.7	silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-	146 , 130, 100, 73, 59
3	16.3	HMDS unknown	222 , 206, 190, 176, 132, 74
4	16.4	HMDS unknown	220 , 206, 190, 132, 74
5	17.0	hexamethyl-cyclotrisiloxane	207 , 191, 96
6	17.1	HMDS unknown	220 , 204, 132, 73
7	17.2	HMDS unknown	223, 207 , 191, 133
8	18.4	decamethyltetrasiloxane	295, 207 , 73
9	18.5	HMDS unknown	236 , 204, 190, 132, 73
10	18.9	HMDS unknown	222, 206 , 190, 132, 74
11	20.1	tetrasilanonane	294, 206 , 190, 73
12	21.5	HMDS unknown	293 , 205, 146, 130, 73
13	23.2	dodecamethylcyclohexasiloxane	429, 341, 325, 147, 73
14	24.3	HMDS unknown	428, 340, 324, 206, 146, 73
15	24.4	unknown	231, 216, 146 , 130, 73
16	24.5	HMDS unknown	428, 340, 324, 206, 146, 73
17	24.7	tetradecamethylcycloheptasiloxane	503, 415, 341, 327, 281, 147, 73
18	26.3	hexadecane	226, 113, 99, 85, 71, 57
19	28.5	octadecane	254, 113, 99, 85, 71, 57
20	30.5	eicosane	282, 113, 99, 85, 71, 57
21	32.3	docosane	310, 113, 99, 85, 71, 57
22	33.9	tetracosane	338, 113, 99, 85, 71, 57
23	35.5	hexacosane	366, 113, 99, 85, 71, 57
24	36.9	octacosane	127, 113, 99, 85, 71, 57
25	38.6	triacontane	127, 113, 99, 85, 71, 57

Table S.8 List of the main pyrolysis products in the chromatogram obtained in the Py(HMDS)-GC-MS analysis of the DCM extract of HDPE-0w.

#	t _r	Peak identification	Main ions (<i>m/z</i>)
1	13.4	unknown	164 , 134, 118, 74
2	14.7	silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-	146 , 130, 100, 73, 59
3	16.3	HMDS unknown	222 , 206, 190, 176, 132, 74
4	16.4	HMDS unknown	220 , 206, 190, 132, 74
5	17.0	hexamethyl-cyclotrisiloxane	207 , 191, 96
6	17.1	HMDS unknown	220 , 204, 132, 73
7	17.2	HMDS unknown	223, 207 , 191, 133
8	18.4	decamethyltetrasiloxane	295, 207 , 73
9	18.5	HMDS unknown	236 , 204, 190, 132, 73
10	18.9	HMDS unknown	222, 206 , 190, 132, 74

		2,2,3,3,7,7,8,8-octamethyl-4,6-dioxo-5-aza-2,3,7,8-	
11	20.1	tetrasilanonane	294, 206 , 190, 73
12	21.5	HMDS unknown	293 , 205, 146, 130, 73
13	23.2	dodecamethylcyclohexasiloxane	429, 341, 325, 147, 73
14	24.3	HMDS unknown	428, 340, 324, 206, 146, 73
15	24.4	unknown	231, 216, 146 , 130, 73
16	24.5	HMDS unknown	428, 340, 324, 206, 146, 73
17	24.7	tetradecamethylcycloheptasiloxane	503, 415, 341, 327, 281, 147, 73
18	26.3	hexadecane	226, 113, 99, 85, 71, 57
19	28.5	octadecane	254, 113, 99, 85, 71, 57
20	30.5	eicosane	282, 113, 99, 85, 71, 57
21	32.3	docosane	310, 113, 99, 85, 71, 57
22	33.9	tetracosane	338, 113, 99, 85, 71, 57
23	35.5	hexacosane	366, 113, 99, 85, 71, 57
24	36.9	octacosane	127, 113, 99, 85, 71, 57
25	38.6	triacontane	127, 113, 99, 85, 71, 57

Table S.9 List of the main pyrolysis products in the chromatogram obtained in the Py(HMDS)-GC-MS analysis of the DCM extract of HDPE-4w.

#	tr	Peak identification	Main ions (<i>m/z</i>)
1	15.2	3-butenic acid, trimethylsilyl ester	143, 117, 99, 73
2	15.5	silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-	146 , 130, 100, 73, 59
3	16.3	2-butenic acid, trimethylsilyl ester	143 , 99, 75
4	16.6	unknown	175, 146, 132 , 115, 73
5	16.7	HMDS unknown	222 , 206, 190, 176, 132, 74
6	17.0	4-pentenoic acid, trimethylsilyl ester	157, 117, 75
7	17.2	pentanoic acid, trimethylsilyl ester	159, 145, 132, 117, 75
8	17.3	HMDS unknown	220 , 207, 132, 73
9	17.4	hexamethyl-cyclotrisiloxane	207 , 191, 96
10	17.44	1-decene	140, 111, 97, 83, 70, 55
11	17.9	cyclotetrasiloxane, octamethyl-	281 , 265, 207, 191, 133, 73
12	18.5	tetrasiloxane, decamethyl-	295, 207 , 191, 73
13	18.8	hexenoic acid, trimethylsilyl ester	171, 129, 117, 75
14	19.0	hexanoic acid, trimethylsilyl ester	173, 117, 75
15	20.0	pentanoic acid, 4-oxo, trimethylsilyl ester	173, 145, 131, 75
16	20.1	4,6-dioxo-5-aza-2,3,7,8-tetrasilanonane-2,2,3,3,7,7,8,8-octamethyl-	294, 206 , 190, 130, 73
17	20.2	propanoic acid, 3-[(trimethylsilyloxy)-, trimethylsilyl ester	219, 177, 147 , 133, 116, 73
18	20.4	heptenoic acid, trimethylsilyl ester	185, 129, 117, 75
19	20.5	heptanoic acid, trimethylsilyl ester	187, 131, 117, 75
20	20.7	pentasiloxane, dodecamethyl-	369, 281, 207, 147, 73
21	21.3	pentasiloxane, dodecamethyl-	369, 353, 281 , 265, 249, 207, 147, 43
22	21.4	unknown	293 , 277, 205, 189, 146, 130,
23	21.7	benzoic acid, trimethylsilyl ester	194, 179 , 135, 105, 77, 51
24	21.8	octenoic acid, trimethylsilyl ester	199, 129, 117, 75
25	21.9	octanoic acid, trimethylsilyl ester	201, 145, 129, 117, 75
26	22.3	1-tridecene	182, 125, 111, 97, 83, 69, 55

27	22.7	butanedioic acid, bis(trimethylsilyl) ester	247, 172, 147 , 129, 73
28	23.2	nonenoic acid, trimethylsilyl ester	215 , 145, 129, 117, 73
29	23.3	nonanoic acid, trimethylsilyl ester	230, 215 , 145, 129, 117, 73
30	23.4	hexasiloxane, tetradecamethyl-	443, 355, 281, 221, 147, 73
31	23.8	tetradecane	198, 127, 113, 99, 85, 71, 57
32	23.9	pentanedioic acid, bis(trimethylsilyl) ester	261, 233, 204, 158, 147 , 129, 116, 97, 73
33	24.4	decanoic acid, trimethylsilyl ester	227, 145, 129, 117, 75
34	24.5	decanoic acid, trimethylsilyl ester	229 , 145, 129, 117, 73
35	25.2	hexanedioic acid, bis(trimethylsilyl) ester	275, 217, 204, 172, 159, 147, 129, 111, 73
36	25.6	undecenoic acid, trimethylsilyl ester	241, 145, 129, 117, 96, 75
37	25.7	undecanoic acid, trimethylsilyl ester	243 , 145, 129, 117, 95, 73
38	26.2	1-hexadecene	224, 125, 111, 97, 83, 69, 55
39	26.3	hexadecane	226, 127, 113, 99, 85, 71, 57
40	26.4	heptanedioic acid, bis(trimethylsilyl) ester	289, 217, 204, 186, 173, 155, 147, 125, 97, 73
41	26.8	dodecenoic acid, trimethylsilyl ester	255, 201, 145, 129, 117, 73
42	26.9	dodecanoic acid, trimethylsilyl ester	257 , 201, 145, 129, 117, 73
43	27.0	cyclooctasiloxane, hexadecamethyl-	415, 401, 355, 281, 221, 147, 73
44	27.3	1-heptadecene	238, 125, 111, 97, 83, 69, 55
45	27.4	octanedioic acid, bis(trimethylsilyl) ester	303, 217, 187, 169, 147, 129, 117, 73
46	27.8	tridecenoic acid, trimethylsilyl ester	269, 145, 129, 117, 73
47	27.9	tridecanoic acid, trimethylsilyl ester	271, 145, 129, 117, 73
48	28.5	nonanedioic acid, bis(trimethylsilyl) ester	317, 217, 201, 147, 129, 117, 97, 73
49	28.9	tetradecenoic acid, trimethylsilyl ester	283, 145, 129, 117, 73
50	29.0	tetradecanoic acid, trimethylsilyl ester	300, 285 , 145, 132, 117, 73
51	29.4	1-nonadecene	266, 139, 125, 111, 97, 83, 69, 55
52	29.5	decanedioic acid, bis(trimethylsilyl) ester	331, 315, 215, 204, 185, 166, 147, 129, 117, 73
53	29.9	pentadecenoic acid, trimethylsilyl ester	297, 145, 129, 117, 73
54	30.0	pentadecanoic acid, trimethylsilyl ester	299, 145, 129, 117, 73
55	30.5	eicosane	282, 127, 113, 99, 85, 71, 57
56	30.7	hexadecenoic acid, trimethylsilyl ester	311, 145, 129, 117, 73
57	30.9	hexadecanoic acid, trimethylsilyl ester	313 , 145, 129, 117, 73
58	31.3	dodecanedioic acid, bis(trimethylsilyl) ester	359, 243, 217, 204, 129, 117, 73
59	31.7	heptadecenoic acid, trimethylsilyl ester	325, 145, 129, 117, 73
60	31.8	heptadecanoic acid, trimethylsilyl ester	342, 327 , 201, 145, 132, 117, 73
61	32.3	docosane	310, 127, 113, 99, 85, 71, 57
62	32.4	octadecenoic acid, trimethylsilyl ester	339, 145, 129, 117 , 97, 75
63	32.7	octadecanoic acid, trimethylsilyl ester	341, 145, 129, 117, 73
64	33.0	tetradecandioic acid, trimethylsilyl ester	387, 271, 217, 204, 147, 129, 117, 73
65	33.5	nonadecanoic acid, trimethylsilyl ester	355, 145, 132, 117 , 97, 73
66	33.9	tetracosane	338, 127, 113, 99, 85, 71, 57
67	34.2	eicosanoic acid, trimethylsilyl ester	384, 369 , 341, 201, 145, 132, 117, 73
68	35.4	hexacosane	127, 113, 99, 85, 71, 57
69	36.9	octacosane	141, 127, 113, 99, 85, 71, 57
70	38.5	nonacosane	131, 127, 113, 99, 85, 71, 57

Table S.10 List of the main pyrolysis products in the chromatograms obtained in the Py-GC-MS analysis of the extraction residues of both PP-0w and PP-4w (**Figure 17**).

#	t _r	Peak identification	Main ions (<i>m/z</i>)
1	2.3	1-propene	41
2	2.6	n-pentane	72, 57, 43

3	3.0	2-methyl-pentane	84, 71, 57, 43
4	3.2	2-methyl-1-pentene	84,69, 56 , 41
5	3.8	2,4-dimethyl-1-pentene	98,83, 56 , 41
6	4.4	2-methyl-1,5-hexadiene	95, 81 , 67, 55, 39
7	5.0	3-methyl-2,4-hexadiene	96, 81 , 67, 53, 39
8	6.6	4-methyl-2-heptene	112, 97, 83, 69 , 55, 41
9	6.8	4-methylheptane	114, 70 , 55, 43
10	7.0	2,5-dimethyl-1,5-hexadiene	110, 95 , 67, 55, 39
11	8.1	2,4-dimethylheptane	85, 71, 57, 43
12	8.3	1,3,5-trimethylcyclohexane	126, 111 , 69, 55, 41
13	8.6	2,4-dimethyl-1-heptene	126, 83, 70, 55, 43
14	8.8	1,3,5-trimethylcyclohexane (isomer)	126, 111 , 69, 55, 41
15	9.0	2,4-dimethyl-1,6-heptadiene	124, 109 , 81, 67, 55, 41
16	9.4	2,4,6-trimethyl-1-heptene	140, 83, 69, 55, 43
17	9.7	2,4,6-trimethyl-1,6-heptadiene	123, 82 , 67, 55, 41
18	10.7	4,6-dimethyl-2-nonene	154, 111, 85, 69 , 55, 41
19	11.5	2,4,6-trimethyl-1-nonene (meso form)	125, 111, 83, 69 , 57, 43
20	11.6	2,4,6-trimethyl-1-nonene (racemic form)	125, 111, 83, 69 , 57, 43
21	12.0	2,4,6,8-tetramethyl-1-nonene (racemic form)	182, 125, 111, 83, 69 , 57, 43
22	12.2	2,4,6,8-tetramethyl-1,8-nonadiene (racemic form)	180, 165, 123, 109, 96, 83, 69 , 55, 41
23	13.4	2,4,6,8-tetramethyl-1-undecene (isotactic)	154, 111, 85, 69 , 55, 43
24	13.5	2,4,6,8-tetramethyl-1-undecene (syndiotactic)	154, 111, 85, 69 , 55, 43
25	13.7	2,4,6,8,10-pentamethyl-1-undecene (syndiotactic)	224, 168, 125, 111, 97, 83, 69 , 57, 43
26	13.9	2,4,6,8,10-pentamethyl-1,10-undecadiene (syndiotactic)	123, 109, 95, 83, 69 , 55, 41
27	14.2	unknown	153, 111, 97, 85, 69 , 57, 41
28	14.7	2,4,6,8,10-pentamethyl-1,14-tridecadiene	250, 123, 109, 95, 83, 69 , 55, 41
29	14.8	2,4,6,8,10-pentamethyl-1-tridecene (isotactic)	252, 153, 125, 111, 97, 83, 69 , 57, 43
30	15.0	unknown	196, 153, 125, 111, 97, 83, 69 , 57, 43
31	15.1	unknown	153, 125, 111, 97, 83, 69 , 57, 43
32	15.2	2,4,6,8,10,12-hexamethyl-1,12-tridecadiene (syndiotactic)	264, 165, 123, 109, 95, 83, 69 , 55, 41
33	15.9	2,4,6,8,10,12-hexamethyl-1,14-pentadecadiene	292, 151, 123, 109, 97, 83, 69 , 55, 41
34	16.1	2,4,6,8,10,12-hexamethyl-1-pentadecene	294, 153, 125, 111, 97, 83, 69 , 57, 43
35	16.2	unknown	294, 153, 125, 111, 97, 83, 69 , 57, 43
36	16.5	2,4,6,8,10,12,14-heptamethyl-1,14-pentadecadiene	306, 165, 123, 109, 97, 83, 69 , 55, 41
37	17.1	2,4,6,8,10,12,14-heptmethyl-1,16-heptadecadiene	334, 151, 123, 109, 97, 83, 69 , 55, 41
38	17.2	2,4,6,8,10,12,14-heptamethyl-1-heptadecene	336, 153, 125, 111, 97, 83, 69 , 57, 43
39	17.5	2,4,6,8,10,12,14,16-octamethyl-1,16-eptadecadiene	348, 165, 123, 109, 97, 83, 69 , 55, 41
40	18.1	2,4,6,8,10,12,14,16-octamethyl-1,18-nonadecadiene	376, 151, 125, 109, 97, 83, 69 , 55, 41
41	18.2	2,4,6,8,10,12,14,16-octamethyl-1-nonadecene	378, 153, 125, 111, 97, 83, 69 , 57, 43
42	18.5	2,4,6,8,10,12,14,16,18-nonamethyl-1,18-nonadecadiene	390, 165, 125, 109, 97, 83, 69 , 55, 41
43	19.0	2,4,6,8,10,12,14,16,18-nonamethyl-1,20-henicosadiene	418, 153, 125, 111, 97, 83, 69 , 55, 41
44	19.1	2,4,6,8,10,12,14,16,18-nonamethyl-1-henicosene	153, 139, 125, 111, 97, 83, 69 , 57, 43
45	19.4	2,4,6,8,10,12,14,16,18,20-decamethyl-1,20-henicosadiene	432, 165, 125, 109, 97, 83, 69 , 55, 43
46	19.8	2,4,6,8,10,12,14,16,18,20-decamethyl-1,22-tricosadiene	460, 153, 125, 111, 97,83, 69 , 55, 41

47	19.9	2,4,6,8,10,12,14,16,18,20-decamethyl-1-tricosene	153, 139, 125, 111, 97, 83, 69 , 57, 43
48	20.3	2,4,6,8,10,12,14,16,18,20,22-undecamethyl-1,22-tricosadiene	474, 125, 111, 97, 83, 69 , 55, 43
49	20.8	2,4,6,8,10,12,14,16,18,20,22-undecamethyl-1,24-pentacosadiene	502, 153, 125, 111, 97, 83, 69 , 55, 43
50	20.9	2,4,6,8,10,12,14,16,18,20,22-undecamethyl-1-pentacosene	153, 139, 125, 111, 97, 83, 69 , 57, 43
51	21.3	2,4,6,8,10,12,14,16,18,20,22,24-dodecamethyl-1,24-pentacosadiene	516, 153, 125, 111, 97, 83, 69 , 55, 43
52	21.9	2,4,6,8,10,12,14,16,18,20,22,24-dodecamethyl-1,26-heptacosadiene	544, 153, 125, 111, 97, 83, 69 , 55, 43
53	22.1	2,4,6,8,10,12,14,16,18,20,22,24-dodecamethyl-1-heptacosene	153, 139, 125, 111, 97, 83, 69 , 57, 43
54	22.6	2,4,6,8,10,12,14,16,18,20,22,24,26-tridecamethyl-1,26-heptacosadiene	560, 165, 125, 111, 97, 83, 69 , 57, 43
55	23.5	2,4,6,8,10,12,14,16,18,20,22,24,26-tridecamethyl-1,28-nonacosadiene	588, 153, 125, 111, 97, 83, 69 , 57, 43
56	23.7	2,4,6,8,10,12,14,16,18,20,22,24,26-tridecamethyl-1-nonacosene	153, 139, 125, 111, 97, 83, 69 , 57, 43
57	24.5	2,4,6,8,10,12,14,16,18,20,22,24,26,28-tetradecamethyl-1,28-nonacosadiene	153, 139, 125, 111, 97, 83, 69 , 57, 43

Table S.11 List of the main pyrolysis products in the chromatograms obtained in the Py-GC-MS analysis of the extraction residues of both PS-0w and PS-4w (**Figure 18**).

#	t _r	Peak identification	Main ions (<i>m/z</i>)
1	6.82	toluene	92, 91 , 65
2	9.44	styrene	104 , 78, 63, 51
3	10.15	allylbenzene	117 , 103, 91, 65
4	10.59	α -methylstyrene	118 , 103, 91, 78, 63, 51
5	11.27	3-butenylbenzene	132, 104, 91 , 65
6	11.41	(1-methylenepropyl)-benzene	132, 117 , 103, 91, 77, 63, 51
7	14.95	1,2-diphenylethane	182, 91 , 65
8	15.14	propane-1,2-diyl dibenzene	196, 105 , 91, 77, 65
9	15.71	1,1'-(1,3-propanediyl)bis-benzene	196, 105, 92 , 77, 65, 51
10	16.07	Stilbene	180, 179 , 165, 152, 102, 89, 76
11	16.11	3-butene-1,3-diyl dibenzene (styrene dimer)	208, 193, 130, 115, 104, 91 , 77, 65
12	16.16	1-pentene-2,4-diyl dibenzene	222, 194, 179, 115, 105 , 91, 77
13	16.64	(E)-1-butene-1,4-diyl dibenzene	208, 117 , 115, 91, 65
14	17.01	hexa-1,5-diene-2,5-diyl dibenzene	234, 143, 130 , 115, 104, 91, 77, 65
15	19.51	5-hexene-1,3,5-triyltribenzene (styrene trimer)	312, 207, 194, 117, 91 , 77

Table S.12 List of the main pyrolysis products in the chromatograms obtained in the Py-GC-MS analysis of the extraction residues of both PET-0w and PET-4w (**Figure S.13**).

#	t _r	Peak identification	Main ions (<i>m/z</i>)
1	2.27	carbon dioxide	44
2	4.13	benzene	78 , 63, 51
3	8.88	ethylbenzene	106, 91 , 77, 65, 51
4	9.37	styrene	104 , 78, 63, 51
5	10.35	benzaldehyde	106, 105 , 77, 51
6	10.66	phenol	94 , 79, 66, 55, 39
7	11.27	benzeneacetaldehyde	120, 91 , 65, 51
8	11.51	acetophenone	120, 105 , 77, 51
9	12.15	vinyl benzoate	148, 105 , 77, 51
10	12.87	benzoic acid	122, 105 , 77, 51
11	13.00	benzoic acid trimethylsilyl ester	194, 179 , 135, 105, 77
12	14.03	biphenyl	154 , 131, 115, 76
13	14.82	unknown	147 , 119, 104, 91, 76
14	15.15	divinyl terephthalate	175 , 147, 132, 104, 76
15	15.54	4-(vinylloxycarbonyl) benzoic acid	149 , 121, 76, 65
16	16.05	stilbene	180 , 179, 165, 152, 102, 89, 76
17	16.31	9H-fluoren-9-one	180 , 152, 126, 76
18	16.99	unknown	198, 181 , 152, 76
19	18.24	ethan-1,2-diyl dibenzoate	227, 105 , 77, 51
20	18.47	unknown	230 , 198, 181, 152, 115
21	20.12	2-(benzoyloxy) ethyl vinyl terephthalate	297 , 149, 105, 77
22	22.52	ethan-1,2-diyl divinyl diterephthalate	367 , 325, 296, 175, 162, 104

Table S.13 List of the main pyrolysis products in the chromatograms obtained in the Py-GC-MS analysis of the extraction residues of both 0w and 4w LDPE and HDPE (**Figure 19**).

#	t _r	Peak identification	Main ions (<i>m/z</i>)
1	3.16	1-hexene	84, 69, 56 , 41
2	4.60	1-heptene	98, 83, 70, 56, 41
3	4.79	heptane	100, 71, 57, 43
4	7.23	1,7-octadiene	110, 95, 82, 67 , 54, 41
5	7.43	1-octene	112, 97, 83, 70, 55 , 41
6	7.62	octane	114, 85, 71, 57, 43
7	9.21	1,8-nonadiene	109, 96, 81, 67, 55 , 41
8	9.34	1-nonene	126, 97, 83, 69, 56 , 41
9	9.47	nonane	128, 99, 85, 71, 57, 43
10	10.57	1,9-decadiene	110, 95, 81, 67, 55 , 41
11	10.66	1-decene	140, 111, 97, 83, 70, 55, 41
12	10.75	decane	142, 113, 99, 85, 71, 57 , 43
13	11.59	1,10-undecadiene	124, 109, 95, 81, 67, 55, 41
14	11.67	1-undecene	154, 125, 111, 97, 83, 70, 55, 41
15	11.74	undecane	156, 98, 85, 71, 57 , 43
16	12.45	1,11-dodecadiene	138, 124, 109, 95, 81, 67, 55 , 41
17	12.51	1-dodecene	168, 140, 125, 111, 97, 83, 69, 55, 41
18	12.57	dodecane	170, 128, 85, 71, 57 , 43

19	13.20	1,12-tridecadiene	123, 109, 95, 81, 67, 55 , 41
20	13.26	1-tridecene	125, 111, 97, 83, 69, 55 , 41
21	13.31	tridecane	184, 99, 85, 71, 57 , 43
22	13.90	1,13-tetradecadiene	123, 109, 96, 81, 67, 55 , 41
23	13.95	1-tetradecene	125, 111, 97, 83, 69, 55 , 41
24	14.00	tetradecane	198, 99, 85, 71, 57 , 43
25	14.54	1,14-pentadecadiene	123, 109, 96, 81, 67, 55 , 41
26	14.59	1-pentadecene	210, 125, 111, 97, 83, 69, 55 , 41
27	14.63	pentadecane	212, 113, 99, 85, 71, 57 , 43
28	15.15	1,15-hexadecadiene	123, 109, 96, 82, 67, 55 , 41
29	15.19	1-hexadecene	224, 125, 111, 97, 83, 69, 55 , 41
30	15.22	hexadecane	226, 99, 85, 71, 57 , 43
31	15.73	1,16-heptadecadiene	137, 123, 109, 96, 82, 69, 55 , 41
32	15.76	1-heptadecene	238, 139, 125, 111, 97, 83, 69, 55 , 41
33	15.80	heptadecane	240, 99, 85, 71, 57 , 43
34	16.27	1,17-octadecadiene	123, 109, 96, 82, 69, 55 , 41
35	16.30	1-octadecene	252, 125, 111, 97, 83, 69, 55 , 41
36	16.34	octadecane	254, 99, 85, 71, 57 , 43
37	16.78	1,18-nonadecadiene	137, 123, 109, 96, 82, 69, 55 , 41
38	16.82	1-nonadecene	139, 125, 111, 97, 83, 69, 55 , 43
39	16.85	nonadecane	268, 127, 113, 99, 85, 71, 57 , 43
40	17.29	1,19-eicosadiene	137, 123, 109, 96, 82, 69, 55 , 41
41	17.31	1-eicosene	139, 125, 111, 97 , 83, 69, 57, 43
42	17.34	eicosane	127, 113, 99, 85, 71, 57 , 43
43	17.75	1,20-heneicosadiene	137, 123, 109, 96, 82, 69, 55 , 41
44	17.78	1-heneicosene	139, 125, 111, 97 , 83, 69, 55, 43
45	17.81	heneicosane	113, 97, 85, 71, 57 , 43
46	18.21	1,21-docosadiene	151, 137, 123, 109, 96, 82, 69, 55 , 41
47	18.23	1-docosene	139, 125, 111, 97, 83, 69, 57 , 43
48	18.25	docosane	310, 99, 85, 71, 57 , 43
49	18.64	1,22-tricosadiene	137, 123, 109, 96, 82, 69, 55 , 41
50	18.66	1-tricosene	322, 125, 111, 97, 83, 69, 55 , 43
51	18.68	tricosane	324, 113, 97, 85, 71, 57 , 43
52	19.06	1,23-tetracosadiene	334, 137, 123, 109, 96, 83, 69, 55 , 41
53	19.08	1-tetracosene	336, 139, 125, 111, 97, 83, 69, 57 , 43
54	19.47	1-pentacosene	350, 139, 125, 111, 97, 83, 69, 57 , 43
55	19.87	1-hexacosene	364, 139, 125, 111, 97, 83, 69, 57 , 43
56	20.28	1-heptacosene	378, 139, 125, 111, 97, 83, 71, 57 , 43
57	21.22	1-octacosene	139, 125, 111, 97, 83, 71, 57 , 43
58	21.78	1-nonacosene	139, 125, 111, 97, 83, 71, 57 , 43
59	22.43	1-triacontene	139, 125, 111, 97, 83, 71, 57 , 43
60	23.18	1-hentriacontene	139, 125, 111, 97, 83, 71, 57 , 43
61	24.07	1-dotriacontane	139, 125, 111, 97, 83, 69, 57 , 43
62	24.48	unknown	153, 125, 111, 97, 83, 69 , 57, 43
63	25.13	1-tritriacontene	139, 125, 111, 97, 83, 71, 57 , 43
