Supporting information

Original article: “Highly selective solid liquid extraction of microplastic as a pre-preparation tool for qNMR studies”

Gravimetric measurements

Samples are weighed on a XS205 DU (METTLER TOLDEO). After collection, the extracts are concentrated to a volume of 5 ml by distillation before being transferred into smaller vials including several rinsing steps using small volumes of the same solvent. Those small vials are weighed once before and after the transfer and subsequent evaporation of the solvent. In case of FA as an extracting solvent, methanol was added in equal amounts before distillation and evaporation.

Extraction setup

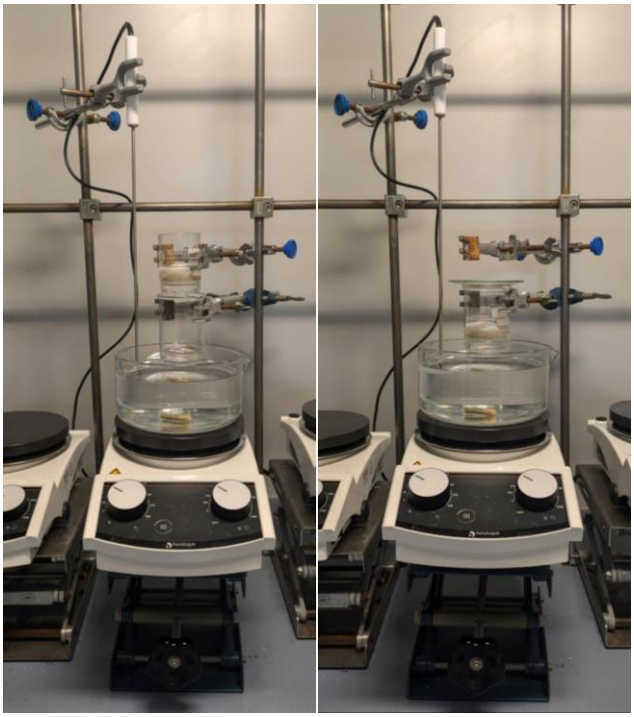

Figure S1: Exemplary extraction setup as used for all extractions described herein.

Calibration data

In $CDCl_3$:

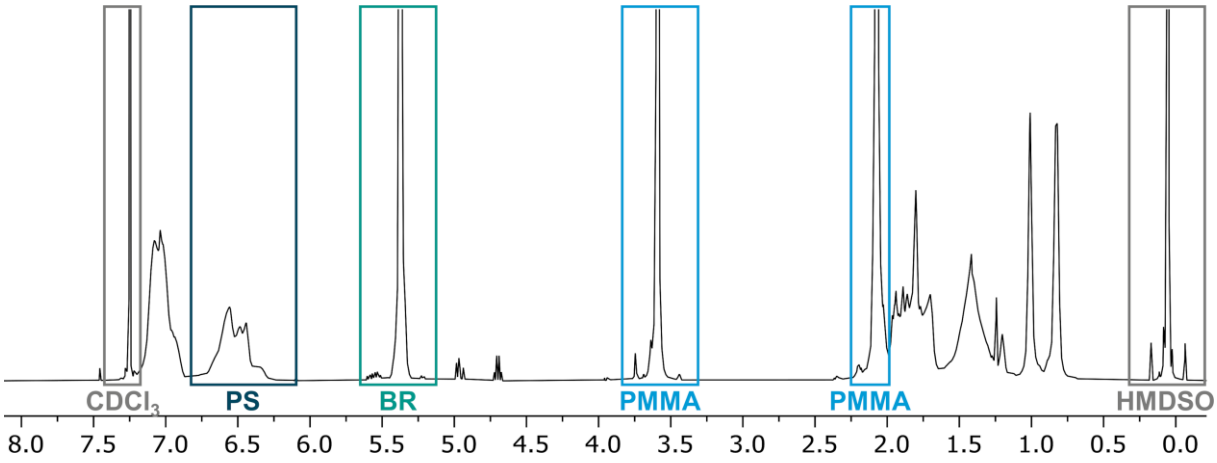

Figure S2: ^1H NMR spectra of PS, BR and PMMA in $CDCl_3$, including HMDSO as internal standard.

Table S1: Calibration data of PMMA, BR and PS in $CDCl_3$, including the root mean square deviation (RMSD) as well as limit of quantification (LOQ) and limit of detection (LOD).

Polymer	**PS**	**BR**	**PMMA**
Calibration range [mg/mL]	0.5 to 2.5	0.5 to 2.5	0.5 to 2.5
Linearity r^2	0.99968	0.99961	0.99965
RMSD	0.00261	0.01136	0.00667
LOQ [µg/mL]	89.34	4.28	5.88
LOD [µg/mL]	26.80	1.28	1.76

Table S2: Model samples used for the validation of PMMA, BR and PS, including the initially weighed in mass (m_{true}), the mass determined by NMR ($m_{calc.}$) as well as accuracy and precising given as bias and relative standard deviation (RSD).

Model sample	**m_{true} [mg]**	**$M_{calc.}$ [mg]**	**Bias [%]**	**RSD [%]**
PS_1	0.95	0.89	93.9	99.3
PS_2	2.02	2.05	101.5	99.9
PS_3	1.38	1.31	95.0	99.8
BR_1	1.81	1.72	95.2	99.8
BR_2	1.25	1.27	101.2	99.9
BR_3	2.13	2.07	97.1	99.9
$PMMA_1$	2.15	2.06	95.9	99.9
$PMMA_2$	0.87	0.85	98.2	99.8
$PMMA_3$	1.47	1.39	94.6	99.9

In TFA/TFE:

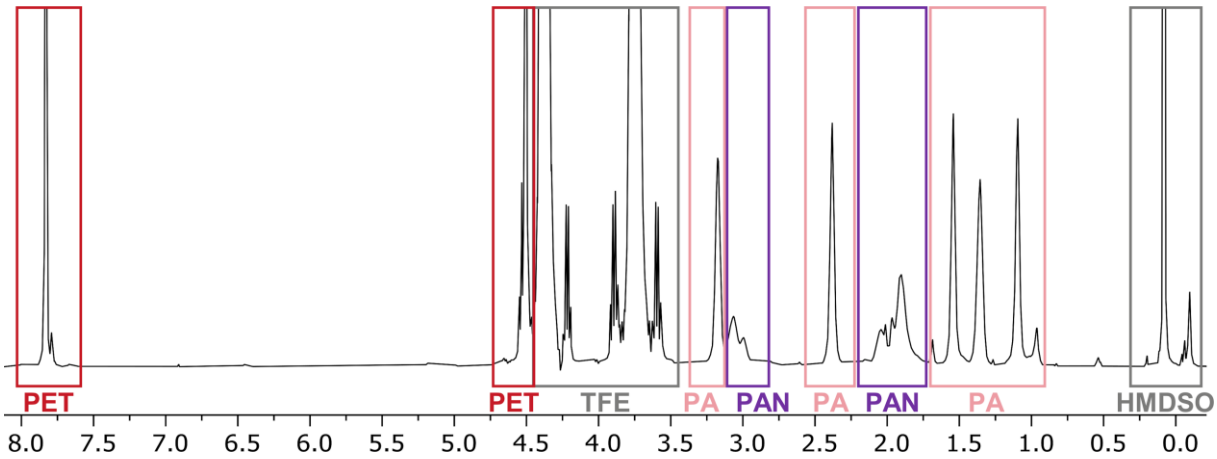

Figure S3: ^{1}H NMR spectra of PET, PA and PAN in TFA/TFE, including HMDSO as internal standard.

Table S3: Calibration data of PET, PA and PAN in TFA/TFE, including the root mean square deviation (RMSD) as well as limit of quantification (LOQ) and limit of detection (LOD).

Polymer	**PET**	**PA**	**PAN**
Calibration range [mg/mL]	0.5 to 2.5	0.5 to 2.5	0.5 to 2.5
Linearity r^2	0.99999	0.99962	0.99974
RMSD	0.00000	0.00002	0.00005
LOQ [µg/mL]	6.68	26.83	41.78
LOD [µg/mL]	2.00	8.05	12.53

Table S4: Model samples used for the validation of PET, PA and PAN, including the initially weighed in mass (mtrue), the mass determined by NMR (mcalc.) as well as accuracy and precising given as bias and relative standard deviation (RSD).

Model sample	**m_{true} [mg]**	**$M_{calc.}$ [mg]**	**Bias [%]**	**RSD [%]**
PET_1	2.26	2.29	101.2	99.9
PET_2	0.53	0.52	98.3	99.0
PET_3	1.24	1.23	99.3	99.8
PA_1	1.10	1.05	95.9	99.1
PA_2	2.46	2.42	98.4	99.7
PA_3	0.89	0.91	102.4	99.4
PAN_1	0.96	0.94	98.1	99.7
PAN_2	1.66	1.64	98.4	99.9
PAN_3	1.84	1.74	94.6	99.4

In THF:

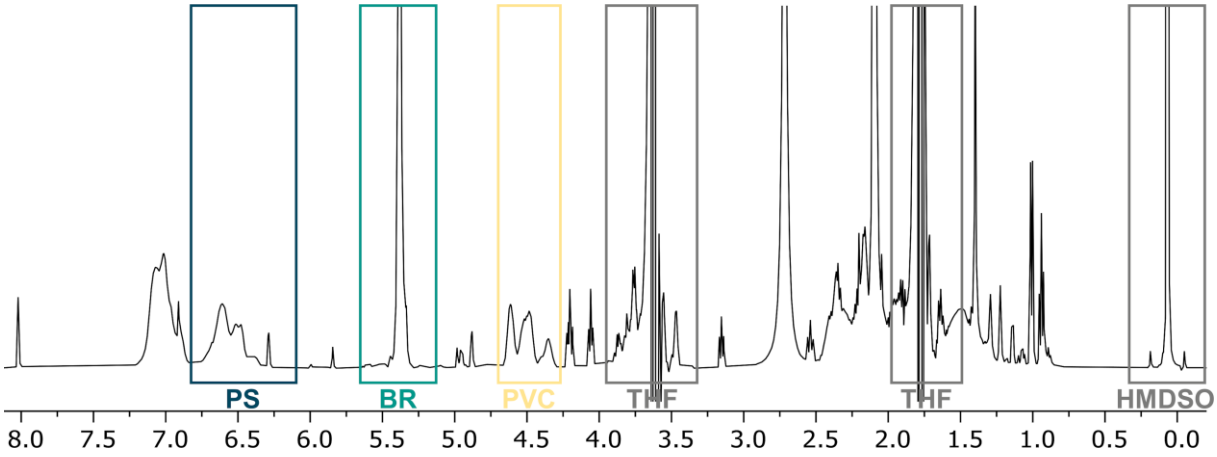

Figure S4: ^{1}H NMR spectra of PS, BR and PVC in THF, including HMDSO as internal standard.

Table S5: Calibration data of PVC, BR and PS in THF, including the root mean square deviation (RMSD) as well as limit of quantification (LOQ) and limit of detection (LOD).

Polymer	**PS**	**BR**	**PVC**
Calibration range [mg/mL]	0.5 to 2.5	0.5 to 2.5	0.5 to 2.5
Linearity r^2	0.99999	0.99993	0.99753
RMSD	0.00002	0.00038	0.00225
LOQ [µg/mL]	92.63	6.52	95.70
LOD [µg/mL]	27.79	1.96	28.71

Table S6: Model samples used for the validation of PVC, BR and PS, including the initially weighed in mass (m_{true}), the mass determined by NMR ($m_{calc.}$) as well as accuracy and precising given as bias and relative standard deviation (RSD).

Model sample	**m_{true} [mg]**	**$M_{calc.}$ [mg]**	**Bias [%]**	**RSD [%]**
PS_1	0.89	0.84	94.5	99.9
PS_2	1.51	1.51	100.2	99.7
PS_3	2.20	2.24	102.0	99.6
BR_1	1.77	1.74	98.4	99.7
BR_2	0.90	0.92	102.3	99.2
BR_3	1.82	1.91	104.9	99.7
PVC_1	1.23	1.16	94.8	98.2
PVC_2	2.05	2.07	100.9	99.1
PVC_3	1.03	1.01	97.5	99.5

In DMSO-d6:

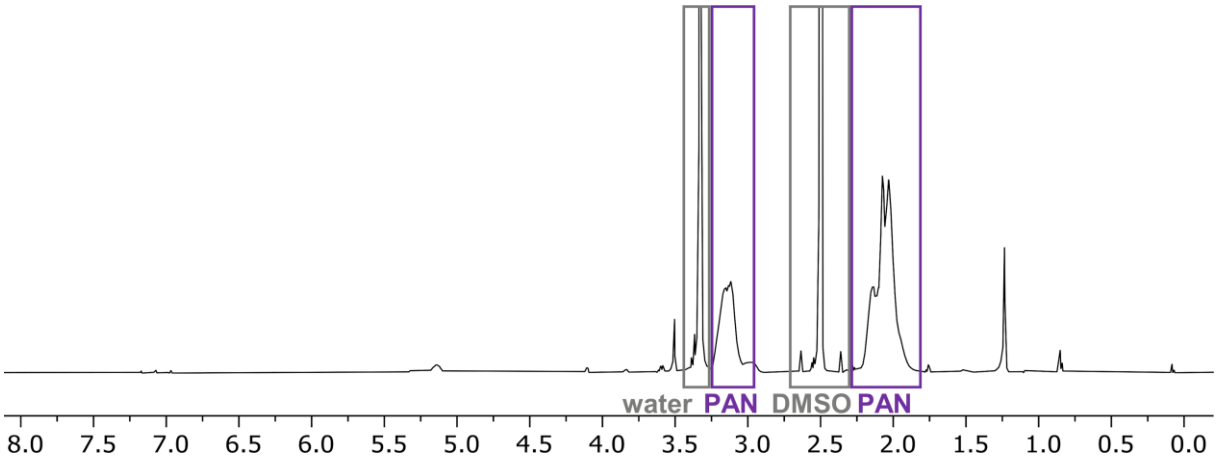

Figure S5: ^{1}H NMR spectra of PAN in DMSO-d6.

Further individual extraction data

NMR:

Table S7: Extraction data of all investigated polymer types after individual extraction using either THF, TFA/$CHCl_3$, FA/$CHCl_3$ or xylene, determined by qNMR analysis. Initially weighed in mass given as $m_{init.}$, calculated extracted mass given as $m_{extr.}$, recovery rate given as RR.

MP	Sample	THF			TFA/$CHCl_3$			FA/$CHCl_3$			Xylene		
		$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]
PS	1	11.44	10.86	94.93	11.06	11.07	100.09	12.45	<0.5	<4.02	11.18	10.00	89.45
	2	11.08	11.10	100.18	11.96	8.32	69.57	11.08	<0.5	<4.51	11.77	10.61	90.10
	3	13.75	13.57	98.71	11.38	7.97	69.99	12.12	<0.5	<4.13	12.21	11.58	94.84
BR	1	11.71	10.58	90.31	11.25	0.80	7.08	12.13	<0.5	<4.12	12.22	7.09	57.98
	2	10.57	10.80	102.19	13.75	<0.85	<6.18	11.70	<0.5	<4.27	12.23	10.04	82.12
	3	11.87	10.52	88.58	12.08	2.12	17.55	12.47	<0.5	<4.01	11.84	10.63	89.78
PMMA	1	13.42	12.88	95.98	11.23	6.97	62.02	11.18	10.96	97.99	15.85	14.19	89.52
	2	10.82	10.18	94.04	12.35	7.84	63.44	11.48	11.41	99.39	17.72	16.04	90.49
	3	11.04	10.55	95.52	12.08	9.31	77.03	14.15	14.17	100.11	13.13	11.48	87.46
PVC	1	11.14	10.07	90.35	11.21	<0.5	<4.46	11.29	<0.5	<4.43	11.81	3.29	27.86
	2	12.86	11.91	92.64	11.49	<0.5	<4.35	10.98	<0.5	<4.55	12.13	3.30	27.21
	3	11.40	10.18	89.25	11.44	<0.5	<4.37	11.98	<0.5	<4.17	11.28	3.04	26.95
PET	1	10.36	<0.5	<4.83	10.85	9.62	88.66	12.22	1.86	15.20	13.07	<0.55	<4.21
	2	10.62	<0.5	<4.71	15.94	15.01	94.16	12.54	1.33	10.61	11.69	<0.5	<4.28
	3	10.63	<0.5	<4.70	11.58	10.89	94.00	12.75	1.52	11.95	12.22	<0.5	<4.09
PA	1	10.61	<0.5	<4.71	11.85	<0.5	<4.22	10.27	7.27	70.74	12.28	<0.5	<4.07
	2	10.93	<0.5	<4.57	10.91	<0.5	<4.58	16.81	14.79	87.99	11.67	<0.5	<4.28
	3	11.86	<0.5	<4.22	10.72	<0.5	<4.66	11.47	10.48	91.33	11.92	<0.5	<4.19
PAN	1	11.07	<0.5	<4.52	13.44	<0.55	<3.72	12.03	<0.5	<4.16	10.71	<0.5	<4.67
	2	10.13	<0.5	<4.94	11.08	<0.5	<4.51	11.36	<0.5	<4.40	11.04	<0.5	<4.53
	3	10.98	<0.5	<4.55	10.35	<0.5	<4.83	10.55	<0.5	<4.74	10.42	<0.5	<4.80
LDPE	1	11.38	n.D.	n.D.	11.05	n.D.	n.D.	11.67	n.D.	n.D.	22.92	n.D.	n.D.
	2	15.92	n.D.	n.D.	10.85	n.D.	n.D.	10.96	n.D.	n.D.	15.72	n.D.	n.D.
	3	10.93	n.D.	n.D.	12.27	n.D.	n.D.	15.89	n.D.	n.D.	16.90	n.D.	n.D.

Gravimetric:

Table S8: Extraction data of all investigated polymer types after individual extraction using either THF, TFA/$CHCl_3$, FA/$CHCl_3$ or xylene, gravimetrically determined by weighing. Initially weighed in mass given as $m_{init.}$, calculated extracted mass given as $m_{extr.}$, recovery rate given as RR.

Polymer	Sample	THF			TFA/$CHCl_3$			FA/$CHCl_3$			Xylene		
		$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]
PS	1	11.44	15.09	131.93	11.06	17.35	156.87	12.45	3.06	24.58	11.18	9.58	85.72
	2	11.08	18.32	165.34	11.96	17.56	146.82	11.08	1.92	17.33	11.77	14.20	120.65
	3	13.75	20.39	148.29	11.38	22.25	195.52	12.12	2.55	21.04	12.21	15.42	126.29
BR	1	11.71	112.63	961.83	11.25	17.90	159.11	12.13	2.69	22.18	12.22	16.23	132.82
	2	10.57	11.53	109.08	13.75	23.43	170.40	11.70	1.63	13.93	12.23	16.44	134.42
	3	11.87	12.77	107.58	12.08	36.60	302.98	12.47	1.90	15.24	11.84	16.75	141.47
PMMA	1	13.42	22.44	167.21	11.23	12.30	109.53	11.18	13.95	124.78	15.85	19.62	123.79
	2	10.82	17.50	161.74	12.35	12.37	100.16	11.48	14.42	125.61	17.72	20.78	117.27
	3	11.04	17.18	155.62	12.08	17.13	141.80	14.15	16.54	116.89	13.13	16.95	129.09
PVC	1	11.14	15.05	135.10	11.21	3.04	27.12	11.29	2.21	19.57	11.81	5.36	45.39
	2	12.86	16.62	129.24	11.49	6.75	58.75	10.98	2.21	20.13	12.13	5.29	43.61
	3	11.40	14.45	126.75	11.44	1.79	15.65	11.98	1.46	12.19	11.28	5.70	50.53
PET	1	10.36	1.22	11.78	10.85	15.28	140.83	12.22	3.34	27.33	13.07	0.57	4.36
	2	10.62	0.90	8.47	15.94	20.20	126.73	12.54	5.51	43.94	11.69	0.56	4.79
	3	10.63	1.04	9.78	11.58	17.33	149.65	12.75	3.56	27.92	12.22	0.85	6.96
PA	1	10.61	4.12	38.83	11.85	9.75	82.28	10.27	12.17	118.50	12.28	0.65	5.29
	2	10.93	26.10	238.79	10.91	2.22	20.35	16.81	19.56	116.36	11.67	-0.03	-0.26
	3	11.86	1.01	8.52	10.72	2.25	20.99	11.47	13.25	115.52	11.92	0.11	0.92
PAN	1	11.07	1.40	12.65	13.44	2.98	22.17	12.03	2.85	23.69	10.71	1.52	14.19
	2	10.13	1.58	15.60	11.08	2.82	25.45	11.36	3.74	32.92	11.04	1.25	11.32
	3	10.98	1.56	14.21	10.35	2.90	28.02	10.55	2.65	25.12	10.42	0.24	2.30
LDPE	1	11.38	1.96	17.22	11.05	3.58	32.40	11.67	2.28	19.54	22.92	22.16	96.68
	2	15.92	2.04	12.81	10.85	2.57	23.69	10.96	1.88	17.15	15.72	16.52	105.09
	3	10.93	3.72	34.03	12.27	3.47	28.28	15.89	2.14	13.47	16.90	16.90	100.00

Table S9: Extraction data of BR after extraction by THF using either one, two or three extraction cycles. Initially weighed in mass given as $m_{init.}$, calculated extracted mass given as $m_{extr.}$, recovery rate given as RR.

Cycle	Repetition	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]
1	1	10.55	10.57	100.14
	2	11.73	11.09	94.54
2	1	11.70	12.57	107.39
	2	12.70	13.49	106.23
3	1	11.05	12.07	109.23
	2	11.45	12.52	109.34

Summary

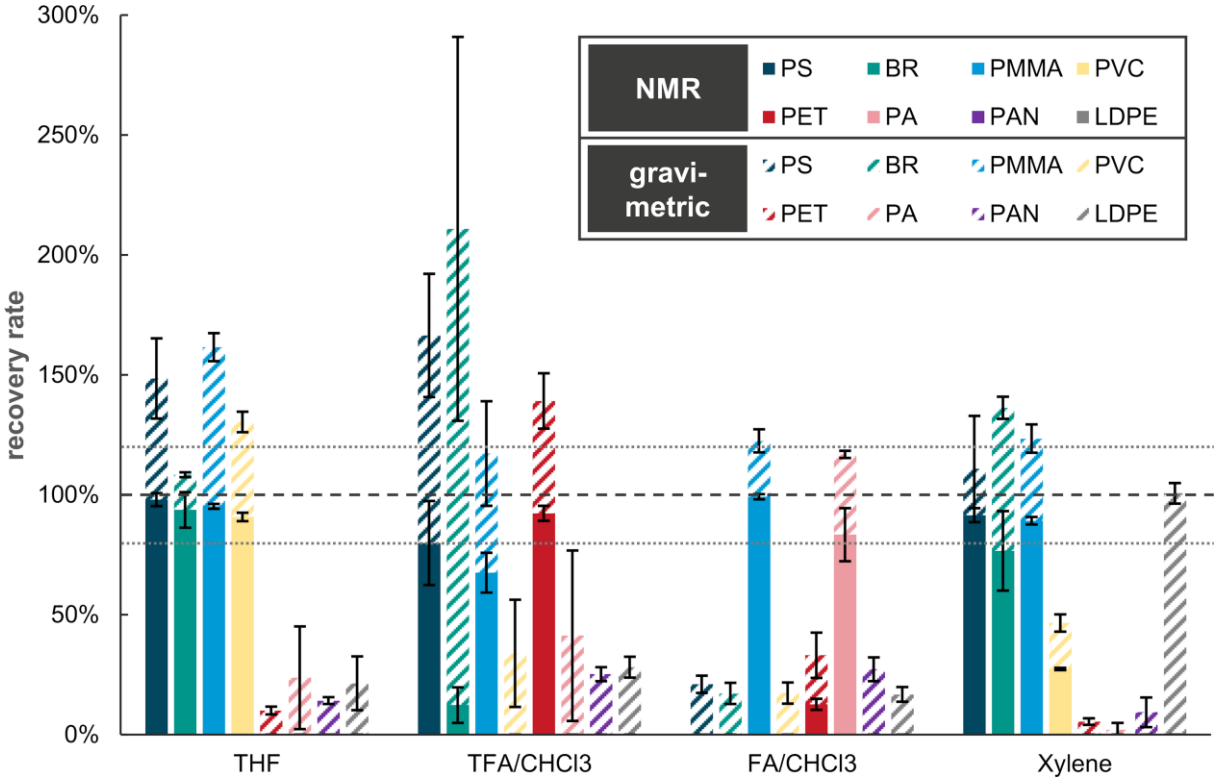

Figure S6: Summarised recovery rates of all investigated polymer types after individual extraction by THF, TFA/$CHCl_3$, FA/$CHCl_3$ and xylene, either determined by qNMR or gravimatically by scale. Recovery rates of xylene were not determined by qNMR.

Combined extractions

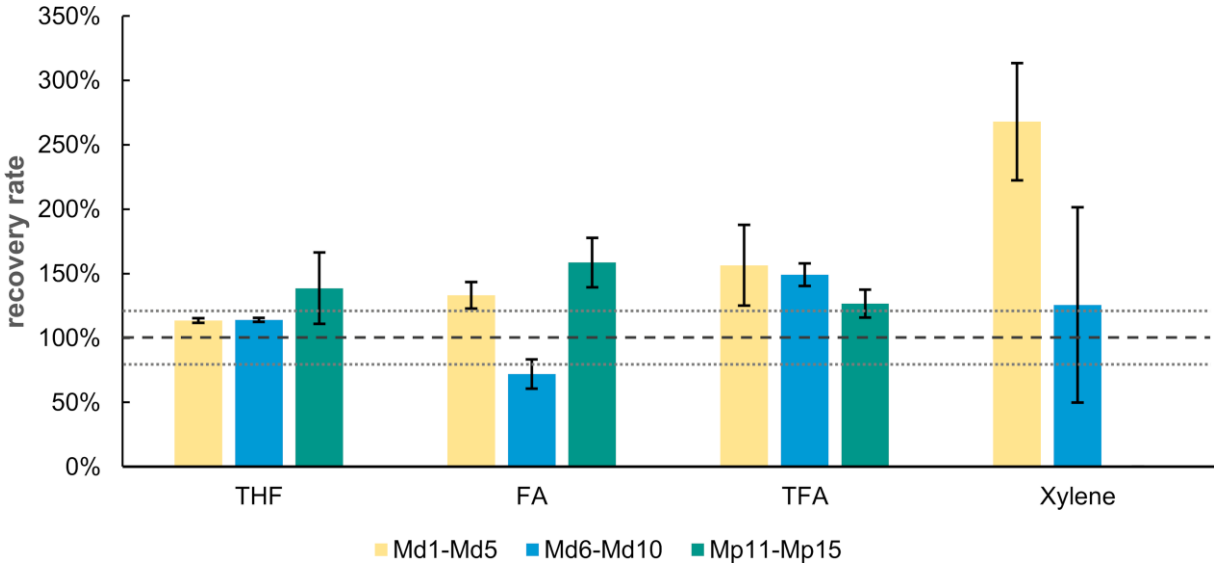

Figure S7: Summarised gravimetrically determined recovery rates of total polymer mass expected to be extracted in each step. No extraction by xylene in samples M_p11-M_p15. (THF: PS, BR, PMMA and PVC; TFA: PET; FA: PA; xylene: LDPE)

NMR:

M_d1-M_d5

Table S10: Extraction data of mixed samples M_d1-M_d5 determined by qNMR analysis. Initial polymer mass given as $m_{init.}$, extracted mass given as $m_{extr.}$, recovery rate given as RR. Results of PS and BR are calculated from both measurements in $CDCl_3$ and THF and presented seperately.

MP	**1**			**2**			**3**			**4**			**5**		
	$m_{init.}$ [mg]	**$m_{extr.}$ [mg]**	**RR [%]**	**$m_{init.}$ [mg]**	**$m_{extr.}$ [mg]**	**RR [%]**	**$m_{init.}$ [mg]**	**$m_{extr.}$ [mg]**	**RR [%]**	**$m_{init.}$ [mg]**	**$m_{extr.}$ [mg]**	**RR [%]**	**$m_{init.}$ [mg]**	**$m_{extr.}$ [mg]**	**RR [%]**
PS_{THF}	10.34	10.01	96.78	10.62	9.99	94.04	10.52	9.39	89.23	11.23	10.15	90.41	10.74	8.61	80.14
PS_{CDCl3}		9.58	92.65		10.26	96.61		10.06	95.63		11.23	100.03		9.50	88.45
BR_{THF}	11.70	11.24	96.07	12.66	11.89	93.94	11.90	10.54	88.57	12.14	10.91	89.84	12.92	10.40	80.50
BR_{CDCl3}		10.91	93.28		12.37	97.74		11.43	96.02		12.25	100.88		11.75	90.97
PMMA	13.95	14.67	105.19	10.76	11.47	106.57	10.83	11.30	104.34	11.22	12.31	109.74	11.83	11.56	97.72
PVC	10.71	9.89	92.37	11.32	10.14	89.58	10.93	9.29	84.96	10.62	9.01	84.81	14.14	10.96	77.51
PA	10.44	7.19	68.87	10.53	9.02	85.66	13.34	12.17	91.20	11.68	10.10	86.43	11.58	9.78	84.46
PET	10.25	10.10	98.54	10.67	5.62	52.62	11.32	0.59	5.17	12.65	12.40	98.04	11.41	11.30	99.04
PAN	10.30	n.D.	n.D.	11.03	n.D.	n.D.	11.39	n.D.	n.D.	11.00	n.D.	n.D.	10.88	n.D.	n.D.
PE	11.42	n.D.	n.D.	13.53	n.D.	n.D.	10.75	n.D.	n.D.	10.83	n.D.	n.D.	10.97	n.D.	n.D.

M_d6-M_d10

Table S11: Extraction data of mixed samples of M_d6-M_d10 determined by qNMR analysis. Initial polymer mass given as $m_{init.}$, extracted mass given as $m_{extr.}$, recovery rate given as RR. Results of PS and BR are calculated from both measurements in $CDCl_3$ and THF and presented seperately.

MP	6			7			8			9			10		
	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]
PS_{THF}	12.41	11.87	95.62	10.82	10.21	94.33	10.93	10.38	94.97	10.88	10.62	97.61	11.74	11.76	100.17
PS_{CDCl3}		13.00	104.75		11.01	101.79		11.34	103.75		11.42	104.96		12.49	106.42
BR_{THF}	12.12	11.94	98.51	11.97	11.83	98.86	11.42	10.63	93.05	10.68	10.83	101.37	11.49	11.97	104.21
BR_{CDCl3}		12.39	102.26		12.07	100.86		10.93	95.74		11.11	104.06		12.19	106.06
PMMA	12.80	12.62	98.59	10.93	10.32	94.42	10.28	9.77	95.07	11.47	11.19	97.59	14.97	14.92	99.67
PVC	11.07	10.54	95.21	10.62	9.78	92.09	10.45	9.99	95.57	10.66	10.16	95.31	14.46	13.91	96.17
PA	11.37	6.57	57.78	10.42	4.63	44.39	10.67	5.05	47.33	10.08	3.34	33.13	12.73	5.25	41.26
PET	10.71	11.16	104.15	11.07	11.09	100.14	12.25	12.14	99.06	10.99	11.73	106.73	14.09	14.84	105.35
PAN	10.65	n.D.	n.D.	10.51	n.D.	n.D.	10.80	n.D.	n.D.	11.42	n.D.	n.D.	12.63	n.D.	n.D.
PE	10.68	n.D.	n.D.	10.33	n.D.	n.D.	11.88	n.D.	n.D.	11.24	n.D.	n.D.	12.07	n.D.	n.D.

M_p11-M_p15

Table S12: Extraction data of mixed samples M_p11-M_p15 determined by qNMR analysis. Initial polymer mass given as $m_{init.}$, extracted mass given as $m_{extr.}$, recovery rate given as RR. Results of PS and BR are calculated from both measurements in $CDCl_3$ and THF and presented seperately.

MP	11			12			13			14			15		
	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]
PS_{THF}		13.47	90.79		9.68	88.40		10.90	91.98		10.97	94.38		10.26	91.12
PS_{CDCl3}	14.84	13.73	92.54	10.95	10.31	94.19	11.85	11.01	92.88	11.62	10.69	91.97	11.26	10.45	92.84
BR_{THF}		9.54	93.71		9.75	95.25		13.65	100.99		11.35	104.87		11.07	101.72
BR_{CDCl3}	10.18	8.45	82.97	10.24	8.92	87.11	13.52	12.64	93.49	10.82	10.07	93.04	10.88	10.18	93.57
PMMA	14.11	12.43	88.07	11.81	10.73	90.83	13.61	12.27	90.18	12.52	10.97	87.65	11.98	10.54	87.98
PVC	11.86	10.80	91.06	10.79	9.86	91.38	10.58	10.09	95.34	12.46	11.36	91.17	11.59	10.29	88.75
PA	11.44	10.59	92.53	10.60	10.03	94.62	10.59	10.03	94.66	12.27	11.98	97.64	11.82	12.65	107.02
PET	13.23	13.16	99.44	14.23	14.21	99.89	10.54	10.55	100.05	10.50	10.73	102.19	14.26	14.65	102.71
PAN	14.45	n.D.	n.D.	10.26	n.D.	n.D.	10.35	n.D.	n.D.	11.58	n.D.	n.D.	11.53	n.D.	n.D.
PE	12.94	n.D.	n.D.	10.73	n.D.	n.D.	12.21	n.D.	n.D.	12.09	n.D.	n.D.	11.66	n.D.	n.D.

Gravimetric:

M_d1-M_d5

Table S13: Extraction data of mixed samples M_d1-M_d5 gravimetrically determined by scale. Initial polymer mass given as $m_{init.}$, extracted mass given as $m_{extr.}$, recovery rate given as RR.

MP	1			2			3			4			5		
	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]
PS	10.34			10.62			10.52			11.23			10.74		
BR	11.7	52.54	112.51	12.66	50.41	111.13	11.9	50.68	114.71	12.14	51.36	113.60	12.92	57.36	115.58
PMMA	13.95			10.76			10.83			11.22			11.83		
PVC	10.71			11.32			10.93			10.62			14.14		
PA	10.44	15.58	149.23	10.53	14.17	134.57	13.34	17.89	134.11	11.68	14.30	122.43	11.58	14.60	126.08
PET	10.25	16.77	163.61	10.67	21.06	197.38	11.32	134.09	1184.54	12.65	15.95	126.09	11.41	15.84	138.83
PAN	10.30	n.D.	n.D.	11.03	n.D.	n.D.	11.39	n.D.	n.D.	11.00	n.D.	n.D.	10.88	n.D.	n.D.
PE	11.42	38.97	341.24	13.53	35.78	264.45	10.75	24.83	230.98	10.83	29.68	274.05	10.97	25.14	229.17

M_d6-M_d10

Table S14: Extraction data of mixed samples of M_d6-M_d10 gravimetrically determined by scale. Initial polymer mass given as $m_{init.}$, extracted mass given as $m_{extr.}$, recovery rate given as RR.

MP	6			7			8			9			10		
	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]
PS	12.41			10.82			10.93			10.88			11.74		
BR	12.12	54.45	112.50	11.97	50.68	114.30	11.42	48.90	113.51	10.68	50.92	116.55	11.49	59.77	113.50
PMMA	12.80			10.93			10.28			11.47			14.97		
PVC	11.07			10.62			10.45			10.66			14.46		
PA	11.37	9.84	86.54	10.42	7.16	68.71	10.67	8.43	79.01	10.08	5.71	56.65	12.73	8.77	68.89
PET	10.71	15.01	140.15	11.07	17.94	162.06	12.25	17.49	142.78	10.99	16.83	153.14	14.09	20.85	147.98
PAN	10.65	n.D.	n.D.	10.51	n.D.	n.D.	10.80	n.D.	n.D.	11.42	n.D.	n.D.	12.63	n.D.	n.D.
PE	10.68	17.93	167.88	10.33	24.32	235.43	11.88	12.65	106.48	11.24	6.74	59.96	12.07	7.12	58.99

M_p11-M_p15

Table S15: Extraction data of mixed samples M_p11-M_p15 gravimetrically determined by scale. Initial polymer mass given as $m_{init.}$, extracted mass given as $m_{extr.}$, recovery rate given as RR.

MP	11			12			13			14			15		
	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]	$m_{init.}$ [mg]	$m_{extr.}$ [mg]	RR [%]
PS	14.84			10.95			11.85			11.62			11.26		
BR	10.18	73.20	143.56	10.24	80.39	183.58	13.52	57.39	115.80	10.82	55.38	116.79	10.88	60.93	133.30
PMMA	14.11			11.81			13.61			12.52			11.98		
PVC	11.86			10.79			10.58			12.46			11.59		
PA	11.44	16.51	144.32	10.6	15.76	148.68	10.59	16.13	152.31	12.27	19.05	155.26	11.82	22.73	192.30
PET	13.23	15.64	118.22	14.23	16.70	117.36	10.54	12.73	120.78	10.5	14.39	137.05	14.26	19.91	139.62
PAN	14.45	n.D.	n.D.	10.26	n.D.	n.D.	10.35	n.D.	n.D.	11.58	n.D.	n.D.	11.53	n.D.	n.D.
PE	12.94	n.D.	n.D.	10.73	n.D.	n.D.	12.21	n.D.	n.D.	12.09	n.D.	n.D.	11.66	n.D.	n.D.

Preliminary extraction experiments

Table 16: Extraction data of BR by an automated extractor (EDGE; CEM) using up to 7 cycles of each 20 ml THF and 20 min duration at 40°C. Initial polymer mass given as $m_{BR, init.}$, extracted mass given as $m_{BR, NMR}$, recovery rate given as RR.

Number of extraction cycles	Repetition	$m_{BR, init.}$ [mg]	$m_{BR, NMR}$ [mg]	RR [%]
4	1	10.25	0.74	7.18
	2	10.27	1.90	18.54
5	1	10.96	1.53	13.98
	2	11.79	3.69	31.26
6	1	10.24	7.96	77.69
	2	12.08	3.74	30.96
7	1	11.70	5.60	47.86
	2	10.15	7.41	72.96

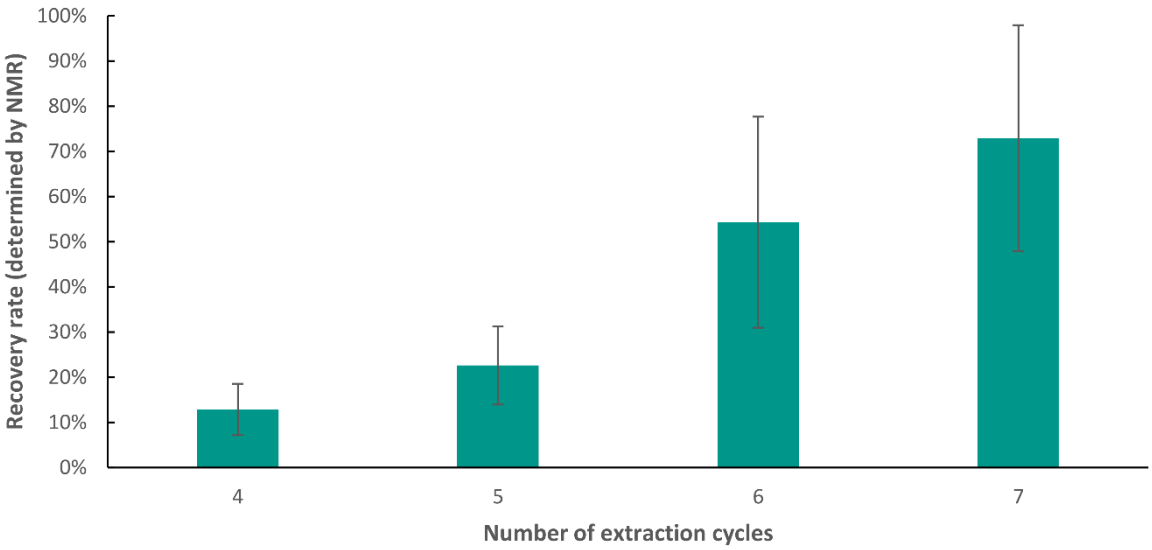

Figure S8: mean recovery rates of BR by an automated extractor (EDGE; CEM) using up to 7 cycles of each 20 ml THF and 20 min duration at 40°C.