

Supplementary material for:
**Occurrence and Removal of Microplastics in Tertiary Wastewater
Treatment Plants: A case Study of Three Plants in Zhengzhou,
China**

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Table S1 Abundance of the MPs in water samples at each WWTP

WWTP	Sampling point	Abundance (n/L)			Mean abundance (n/L)	Standard deviation
		Set1	Set2	Set3		
A	IN	262.4	244.0	226.4	244.3	14.7
	STPO	37.6	41.6	29.6	36.3	5.0
	OUT	22.4	18.4	24.0	21.6	2.4
B	IN	303.2	288.8	274.4	288.8	11.8
	STPO	79.2	77.6	83.2	80.0	2.4
	OUT	66.4	71.2	68.8	68.8	2.0
C	IN	144.0	148.0	150.4	147.5	2.6
	STPO	31.2	40.8	47.2	39.7	6.6
	OUT	16.8	18.4	27.2	20.8	4.6

Table S2 Abundance of the MPs in sludge samples at each WWTP

WWTP	Abundance (n/kg)			Mean abundance (n/kg)	Standard deviation
	Set1	Set2	Set3		
A	28156.7	19923.8	14374.6	20818.4	5662.0
B	9620.9	12788.5	13664.6	12024.7	1737.0
C	16830.3	17248.0	16581.6	16886.6	274.9

Table S3 Percentage of the MPs size ranges in water and sludge samples at each WWTP.

WWTP	Sampling point	Percentage (%)		
		10-50 μm	50-100 μm	>100 μm
A	IN	77.9	18.8	3.3
	STPO	83.1	5.9	11.0
	OUT	62.9	25.9	11.2
	Sludge	83.8	14.7	1.5
B	IN	79.6	16.3	4.1
	STPO	82.7	15.3	2.0
	OUT	77.1	16.7	6.2
	Sludge	90.4	8.2	1.4
C	IN	83.2	11.7	5.1
	STPO	66.4	22.8	10.8
	OUT	52.6	24.4	23.0
	Sludge	72.9	15.3	11.8

Table S4 Percentage of the MPs shapes in water and sludge samples at each WWTP.

WWTP	Sampling point	Percentage (%)			
		Fiber	particle	Film	Fragment
A	IN	81.6	0.3	11.0	7.1
	STPO	83.8	12.5	1.5	2.2
	OUT	92.6	3.7	1.2	2.5
	Sludge	77.9	/	16.2	5.9
B	IN	86.5	3.9	4.6	5.0
	STPO	75.3	1.3	3.3	20.1
	OUT	79.5	3.9	8.9	7.7
	Sludge	76.3	3.4	3.4	16.9
C	IN	65.8	3.6	11.4	19.2
	STPO	75.2	10.1	0.6	14.1
	OUT	78.2	19.2	/	2.6
	Sludge	78.1	1.4	12.3	8.2

Table S5 Percentage of the MPs colors in water and sludge samples at each WWTP

WWTP	Sampling point	Percentage (%)						
		Transparent	Gray	Blue	Yellow	Black	Red	Green
A	IN	73.8	20.2	1.3	3.9	0.7	/	0.1
	STPO	66.2	12.5	11.8	6.6	2.9	/	/
	OUT	64.2	12.3	6.2	11.1	6.2	/	/
	Sludge	73.5	23.5	1.5	/	/	1.5	/
B	IN	86.3	9.9	0.4	2.7	0.5	0.2	/
	STPO	57.7	30.0	0.7	9.3	1.3	/	1.0
	OUT	69.4	21.6	0.4	3.9	4.7	/	/
	Sludge	54.8	20.5	/	19.2	5.5	/	/
C	IN	37.4	50.5	/	11.2	0.7	/	0.2
	STPO	63.8	27.5	4.0	2.7	/	2.0	/
	OUT	67.9	11.5	2.6	11.5	6.5	/	/
	Sludge	35.6	49.2	3.4	10.2	1.6	/	/

Table S6 Percentage of the MPs polymer types in water and sludge samples at each WWTP.

WWTP	Sampling point	Percentage (%)									
		PVC	PET	PP	PPO	PS	PMMA	PE	PA	PTFE	POM
A	IN	0.7	1.5	76.2	18.0	0.4	0.5	2.4	0.3	/	/
	STPO	0.7	14.0	54.4	22.8	5.2	2.9	/	/	/	/
	OUT	1.2	18.5	42.0	33.3	/	2.6	1.2	1.2	/	/
	Sludge	17.6	5.9	69.1	1.5	2.9	1.5	1.5	/	/	/
B	IN	1.1	0.7	53.2	42.1	0.6	0.6	1.7	/	/	/
	STPO	10.3	23.7	26.7	34.0	3.0	0.7	1.3	/	/	0.3
	OUT	0.8	2.3	62.0	31.0	1.2	0.4	1.9	/	0.4	/
	Sludge	4.1	2.7	78.1	2.7	5.5	1.4	5.5	/	/	/
C	IN	2.4	24.8	55.2	10.1	4.4	0.5	2.4	/	/	0.2
	STPO	1.3	20.8	38.3	35.6	0.7	1.3	/	0.7	/	1.3
	OUT	3.8	59.0	9.0	23.0	/	2.6	/	2.6	/	/
	Sludge	15.3	42.4	20.3	8.5	1.7	/	11.8	/	/	/