Supporting Information (SI)

Pre-conditioning of Model Bio-carriers by Soluble Pollutants: A QCM-D Study

Hui Huang, Li-li Ding, Hong-qiang Ren*, Jin-ju Geng, Ke Xu, Yan Zhang

State Key Laboratory of Pollution Control and Resource Reuse, School of the Environment, Nanjing University, Nanjing 210023, Jiangsu, PR China

*Corresponding author: hqren@nju.edu.cn (Hong-qiang Ren)

	WWTP-1	WWTP-2	WWTP-3	
Type of wastewater	Municipal westswater	Fine chemical westswater	Chemical industrial park	
	Municipal wastewater	rine chemical wastewater	wastewater	
Location	Jiangning, Jiangsu province,	Liuhe, Jiangsu province,	Yixing, Jiangsu province,	
	China	China	China	
Process of biological treatment unit	A/O(MBR)	UASB+BCO1 ^b + BCO2	A^2/O	

Table S1. Description of wastewater treatment plants (WWTPs) in this study^{*a*}.

^a: LL, HL and HH were from aerobic bioreactor in WWTP-1, BCO2 in WWTP-2 and aerobic bioreactor in

WWTP-3, respectively.

^b: Biological Contact Oxidation.

Metals (mg L ⁻¹)	LL	HL	НН	
Fe	0.016 ± 0.0015^{a}	ND^b	0.355±0.0128	
Al	ND	ND	0.143±0.0050	
Ni	0.017±0.0017	ND	ND	
Cu	0.006±0.00058	ND	ND	

Table S2. Other metals not synchronously detected in the three real wastewater.

^{*a*}: One standard deviation. ^{*b*}: Not detected.

	Peak A		Peak B		Peak C		Peak D		Peak E	
	Ex/Em	Int. ^a	Ex/Em	Int.	Ex/Em	Int.	Ex/Em	Int.	Ex/Em	Int.
LL	340/430	3.90	270/440	3.67	250/420	4.20	280/350	3.74	ND^b	ND
HL	350/430	2.06	280/440	1.83	240/430	2.93	280/400	2.19	240/400	3.07
HH	360/450	9.61	290/460	8.39	260/450	8.71	280/370	26.13	ND	ND

Table S3. Fluorescence spectral identification of real wastewater in this study.

^{*a*}: intensity (R.U., $\times 10^5$ nm⁻¹). ^{*b*}: Not detected.



Figure S1. Images of contact angles determination: (a)-(d): PS surface, (a) water, (b) LL, (c) HL, (d) HH; (e)-(h): PA surface, (e) water, (f) LL, (g) HL, (h) HH.



Figure S2. Normalized frequency and dissipation shifts at the 5th, 7th, 9th, and 11th harmonics (i.e., n = 5, 7, 9, and 11) during the deposition of synthetic wastewater L1 on PS

and PA surfaces.



Figure S3. Normalized frequency and dissipation shifts at the 5th, 7th, 9th, and 11th harmonics (i.e., n = 5, 7, 9, and 11) during the deposition of synthetic wastewater L2 on PS

and PA surfaces.



Figure S4. Normalized frequency and dissipation shifts at the 5th, 7th, 9th, and 11th harmonics (i.e., n = 5, 7, 9, and 11) during the deposition of synthetic wastewater H on PS

and PA surfaces.



Figure S5. Dissipation factors versus frequency shifts during the deposition of tested samples on PS and PA surfaces: (a) group of L1; (b) group of L2; (c) group of H; (d) group of real

wastewater.



Figure S6. Fitting results of adlayer thickness and mass variations during the deposition: (a)

LL; (b) HL; (c) HH.