

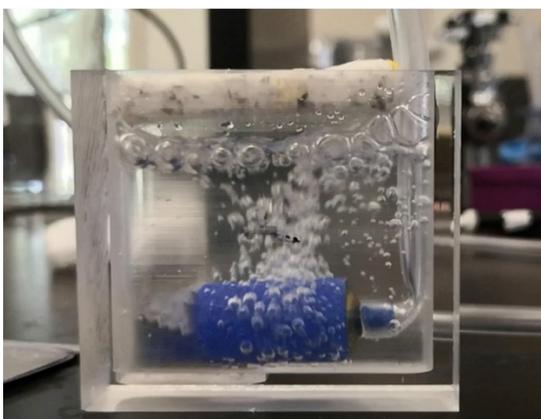
Electronic Supplementary Information

Impacts of aeration flow rates and bubble sizes on PFOA/PFOS removal in electrocoagulation

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(A)



(B)

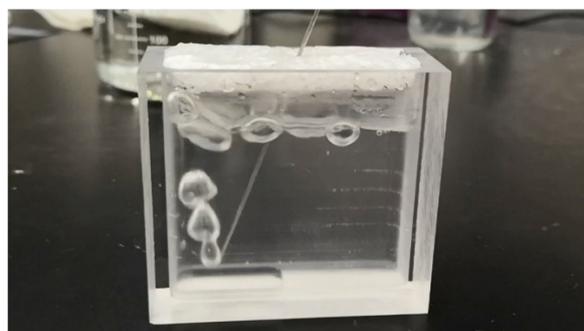


Figure S1. Aeration (airflow rate: 9.4 mL/sec) diffused by (A) an air stone to generate fine bubbles, and (B) a syringe needle to generate coarse bubbles.

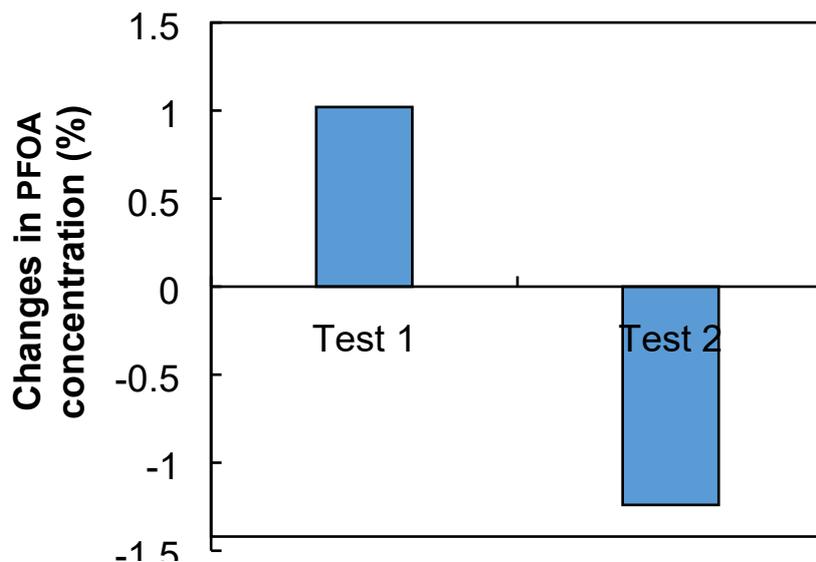


Figure S2. The duplicate test results of the control test (for an hour) without aeration and electrical input (initial concentration: $0.1\mu\text{M}$, initial pH: 3.5). Each column shows changes in PFOA concentration in a single test.

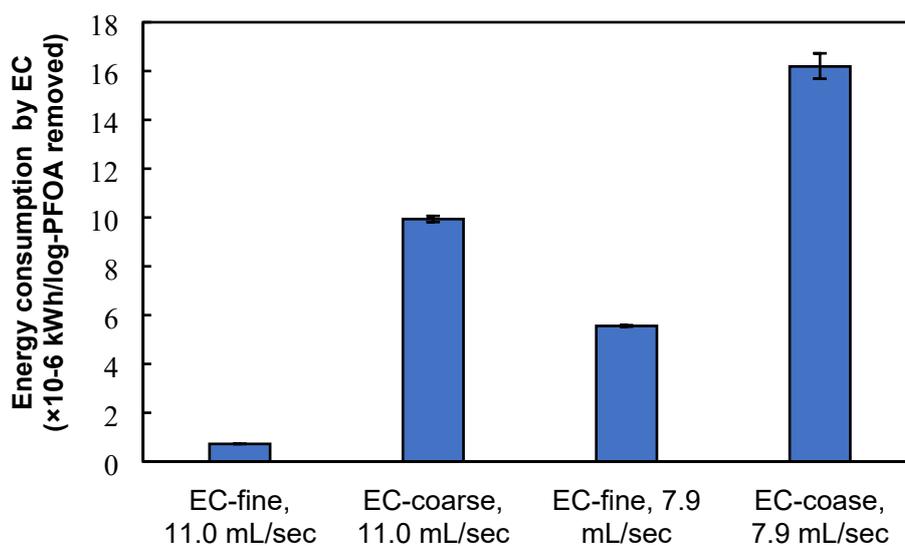


Figure S3. The estimated total energy consumptions (electrical + aeration) for PFOA removal (initial concentration: $0.01\mu\text{M}$; initial pH: 3.5) by EC-fine and EC-coarse with a low airflow rate (7.9 mL/sec) and a high airflow rate (11.0 mL/sec). The error bars indicate mean \pm standard deviation values ($n = 3$).

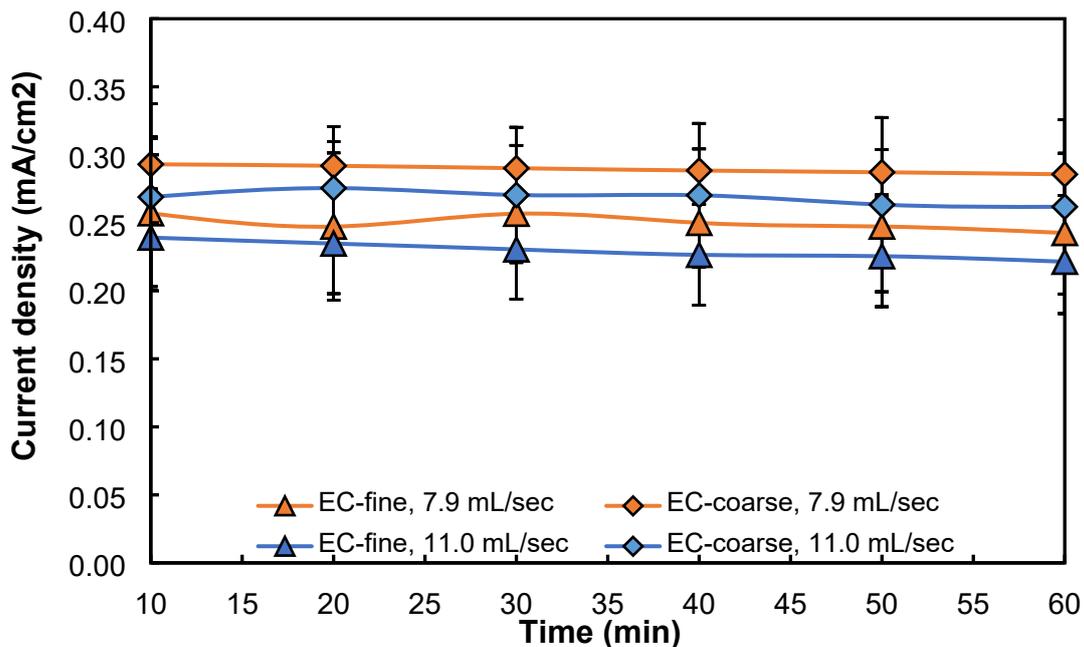


Figure S4. Current generation by EC-fine and EC-coarse with airflow rates of 7.9 mL/sec and 11.0 mL/sec. The error bars indicate mean \pm standard deviation values (n=216).

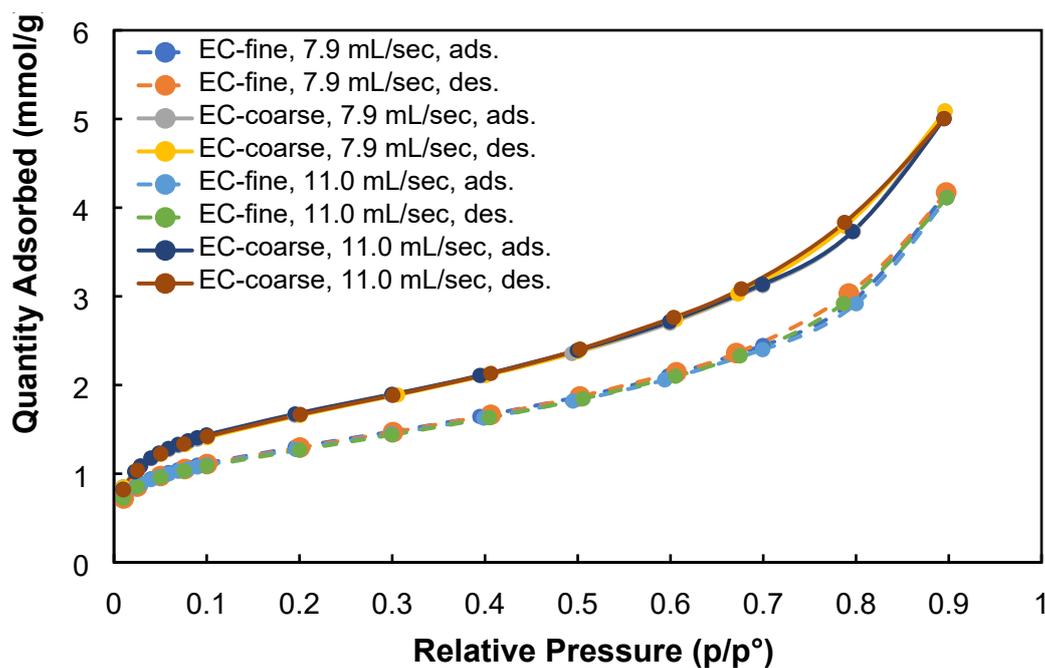


Figure S5. The BET nitrogen adsorption (ads.) and desorption (des.) isotherm curves for dry floc generated by EC-fine and EC-coarse aerated with low (7.9 mL/sec) and high (11.0 mL/sec) airflow rates.

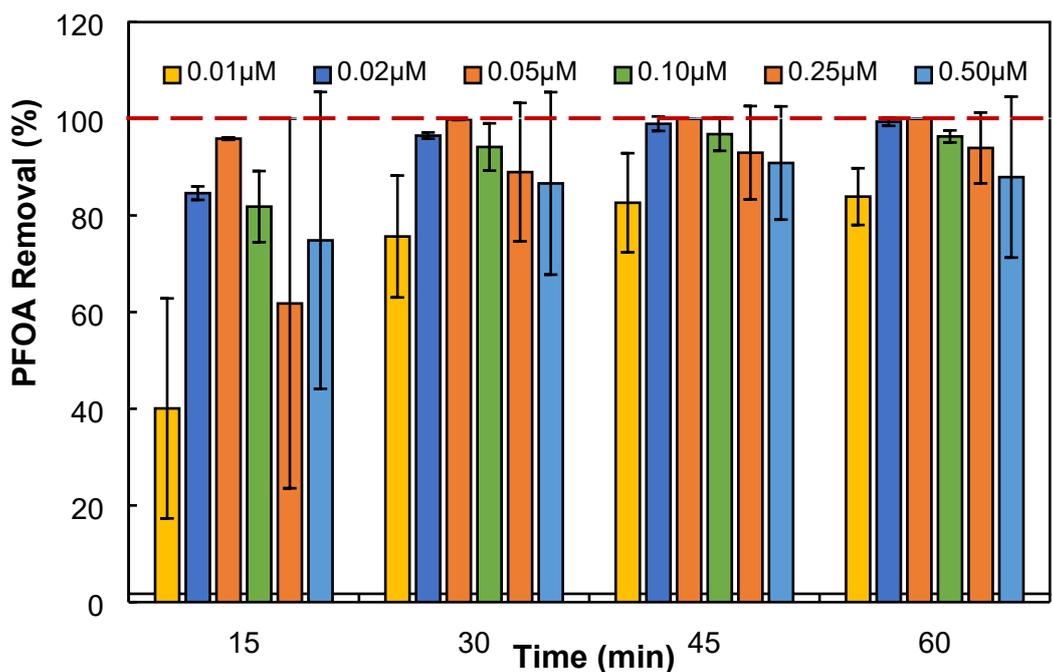


Figure S6. PFOA (initial concentration 0.01, 0.02, 0.05, 0.10, 0.25, and 0.50 μM; initial pH: 3.5) removal using EC-fine with an airflow rate of 9.4 mL/sec. The red dot line indicates 100% removal of PFOA. The error bars indicate mean±standard deviation values (n = 3).

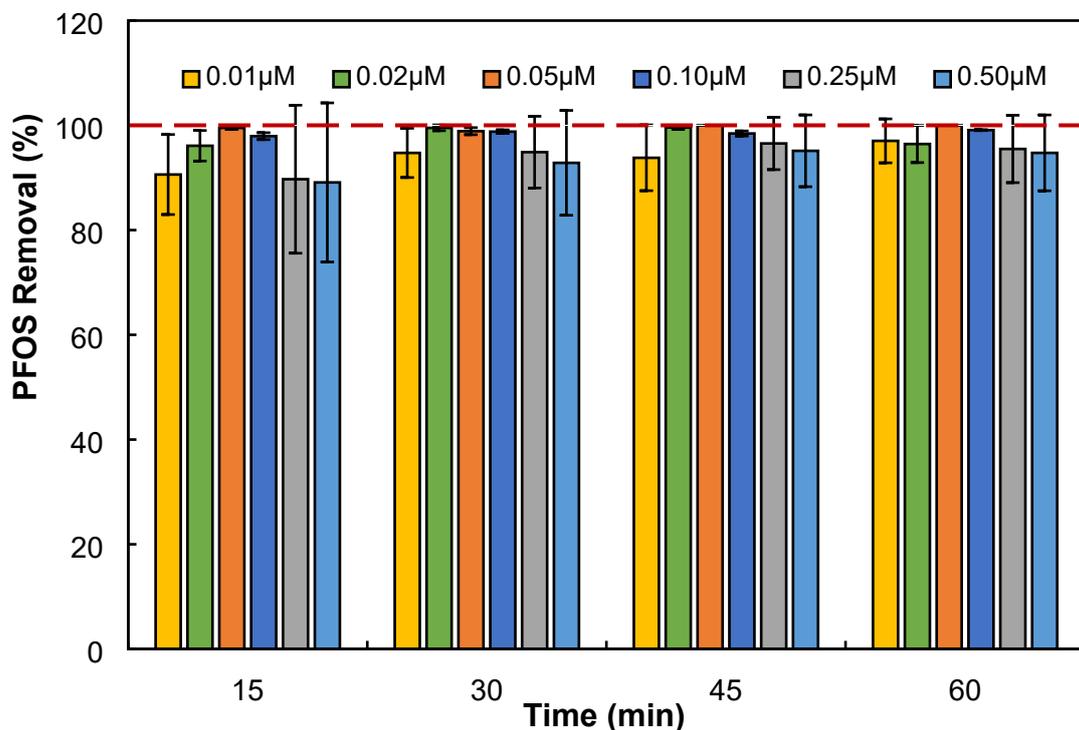


Figure S7. PFOS (initial concentration 0.01, 0.02, 0.05, 0.10, 0.25, and 0.50 μM; initial pH: 3.5) removal using EC-fine with an airflow rate of 9.4 mL/sec. The red dot line indicates 100% removal of PFOA. The error bars indicate mean±standard deviation values (n = 3).

Table S1. Dilution factors of PFOA/PFOS (with different initial concentrations) sampling for LC/MS test.

Initial concentrations (μM)	Dilution factors
0.01	10
0.02	20
0.05	50
0.10	100
0.25	200
0.50	400