

Supplementary Material

Table S1 Characteristics of RS collected from municipal WWTP of Wenchang

parameters	pH	water content /%	SS /(g L ⁻¹)	VSS /(g L ⁻¹)	SRF /($\times 10^{12}$ m kg ⁻¹)	SCOD /(mg L ⁻¹)
value	6.8	96 \pm 1	15.2 \pm 0.2	8.62 \pm 0.14	7.85 \pm 0.12	236 \pm 2

Table S2 The chemical compositions of cinder

constituent	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	CaO	MgO	MnO ₂	TiO ₂	C
content/%	39.3	31.7	7.63	3.71	0.83	0.21	2.31	14.3

Table S3 Analysis of variance for the orthogonal experiments

source of variance		degree of freedom	sum of the deviation square	F-rate	F-critical value
ACMC	acid concentration	2	3.049	1.477	5.14
	ration of acid to cinder	2	0.802	0.418	5.14
	soaking time	2	2.282	1.105	5.14
ALMC	alkali concentration	2	3.002	1.551	5.14
	ration of alkali to cinder	2	0.389	0.201	5.14
	soaking time	2	2.416	1.248	5.14