



Fig. S1 Room-temperature Mössbauer spectrum of the sludge

Table S1 Mössbauer parameters of the sludge

Sample	Crystalline phase	IS <sup>a</sup> (mm/s)	Qs <sup>b</sup> (mm/s)	Hhf (KOe)	Ratio <sup>c</sup> (%)
Iron sludge	Ferrihydrite	0.33±0	0.65±0		71.1
	Hematite	0.36±0.04	0.16±0.07	510.3±2	28.9

<sup>a</sup> IS, isomer shift, related to  $\alpha$ -Fe.

<sup>b</sup> Qs, electric quadrupole splitting.

<sup>c</sup> Ratio, spectral area ratio.