Supplementary Materials

Stabilization of chromium (VI) in the presence of iron (II): method development and validation

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Process water quality

Table S1. Analytical data of the process water of the waterworks of the German Environment Agency (UBA) in Berlin-Marienfelde (Germany).

Parameter	Value	Unit
pH at 25 °C	7.56	–
Conductivity at 25 °C	868	µS cm^{-1}
Total hardness	20.3	°dH
Carbonate hardness	11.2	°dH
Carbon dioxide	9	mg L^{-1}
Acid capacity to pH 4.3	4	mol m^{-3}
Base capacity to pH 8.2	0.2	mol m^{-3}
Calcium	126	mg L^{-1}
Magnesium	11.8	mg L^{-1}
Sodium	47.8	mg L^{-1}
Potassium	< 2.0	mg L^{-1}
Silicon	12	mg L^{-1}
Iron	< 0.02	mg L^{-1}
Manganese	< 0.02	mg L^{-1}
Copper	< 0.02	mg L^{-1}
Zinc	0.02	mg L^{-1}
Aluminum	< 0.01	mg L^{-1}
Ammonium	< 0.1	mg L^{-1}
Chloride	75.2	mg L^{-1}
Sulfate	156	mg L^{-1}
Nitrate	< 3.0	mg L^{-1}
Phosphate	< 0.3	mg L^{-1}
Bromide	0.19	mg L^{-1}

Spearman' rank correlation coefficient

Table S2. Correlation between buffer concentration and Cr (VI) recovery.

Buffer System	Fe (II) (mg L^{-1})	pH	Spearman's Rank Correlation Coefficient
HPO_4^{2-}	1	10	1,00
		11	0,95
		12	0,80
	3	10	0,80
		11	0,95
		12	0,80
	6	10	0,50
		11	0,95
		12	0,80
HCO_3^-	1	10	0,80
		11	-0,25
		12	-0,40
	3	10	-0,25
		11	-0,85
		12	-0,40
	6	10	1,00
		11	0,80
		12	0,95
NH_4^+	1	10	0,80
		11	0,65
		12	0,80
	3	10	0,90
		11	0,10
		12	0,80
	6	10	0,50
		11	0,90
		12	0,90

XRD spectra of the precipitates

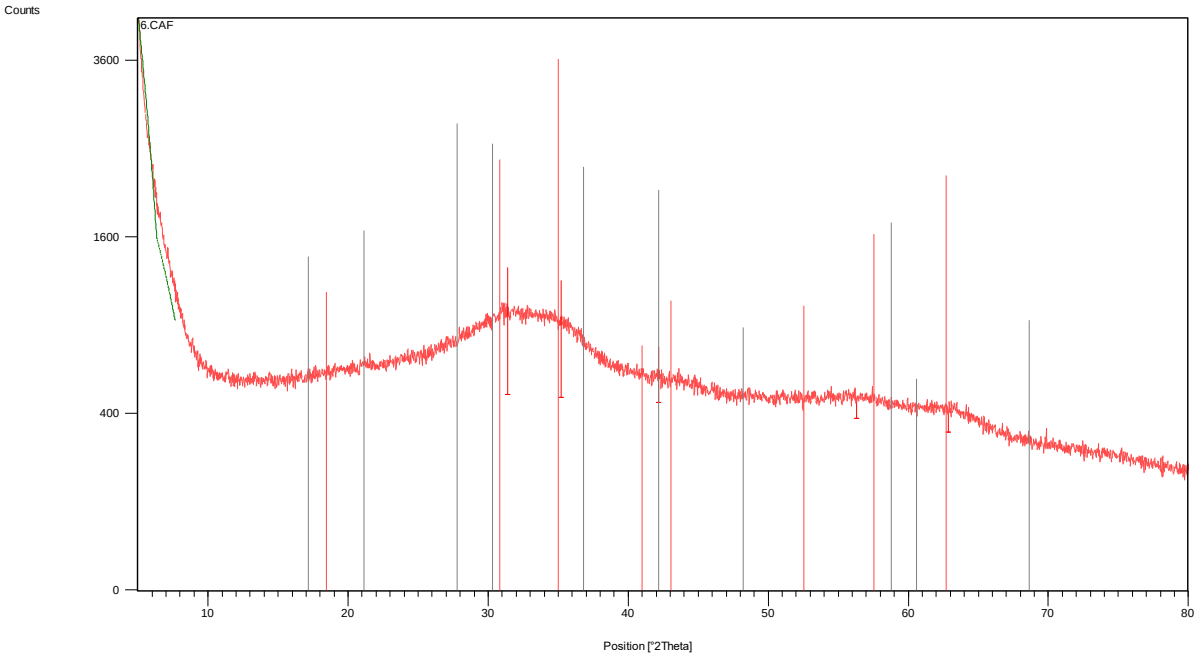

Figure S1. XRD spectrum of the precipitates of 50 µg L^{-1} Cr (VI) with 100 mg L^{-1} Fe (II) and 30 mM hydrogen phosphate (HPO_4^{2-}) buffer in process water.

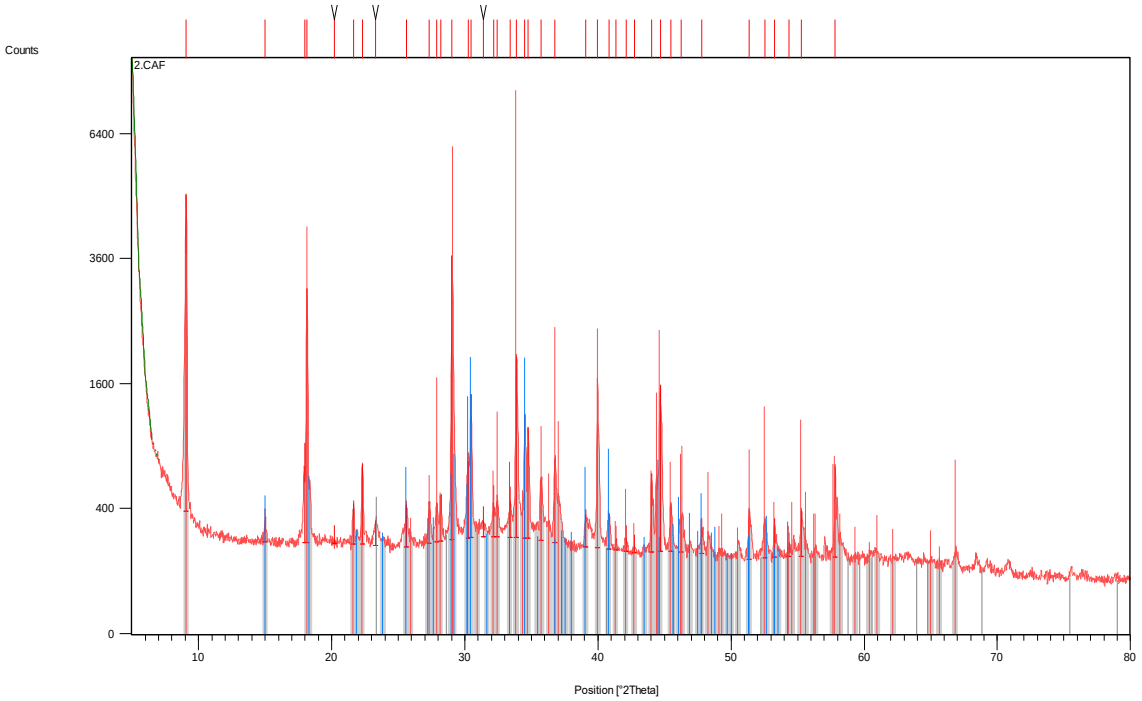

Figure S2. XRD spectrum of the precipitates of 50 µg L^{-1} Cr (VI) with 100 mg L^{-1} Fe (II) and 30 mM hydrogen carbonate (HCO_3^-) buffer in pure water.

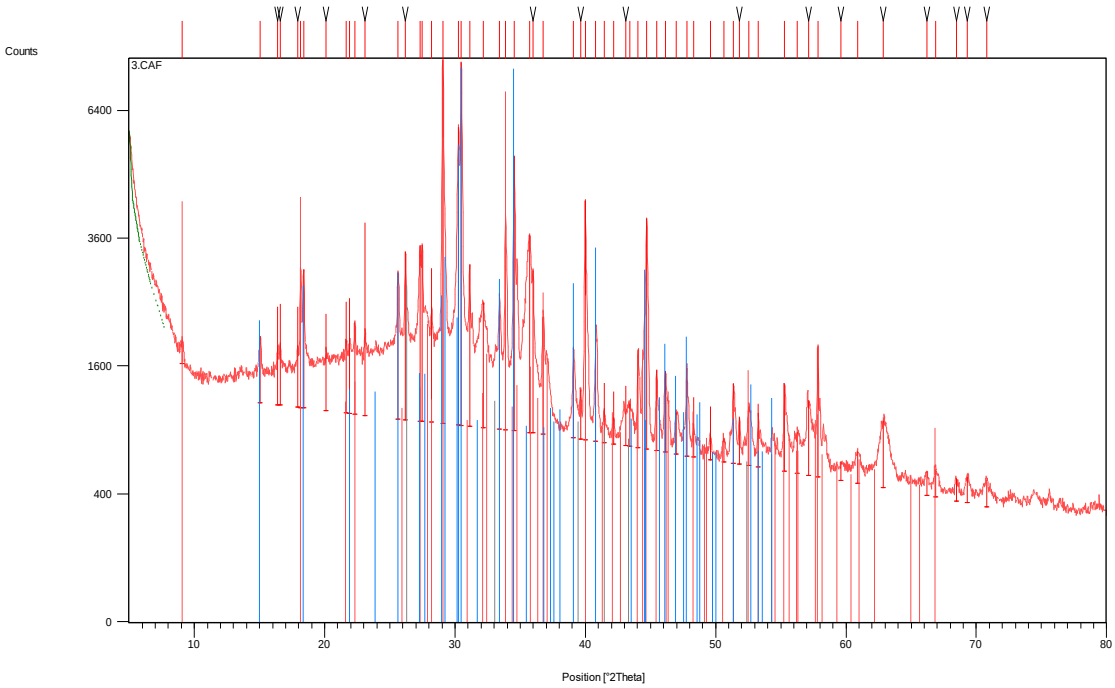

Figure S3. XRD spectrum of the precipitates of 50 µg L^{-1} Cr (VI) with 50 mg L^{-1} Fe (II) and 30 mM hydrogen carbonate (HCO_3^-) buffer in pure water.

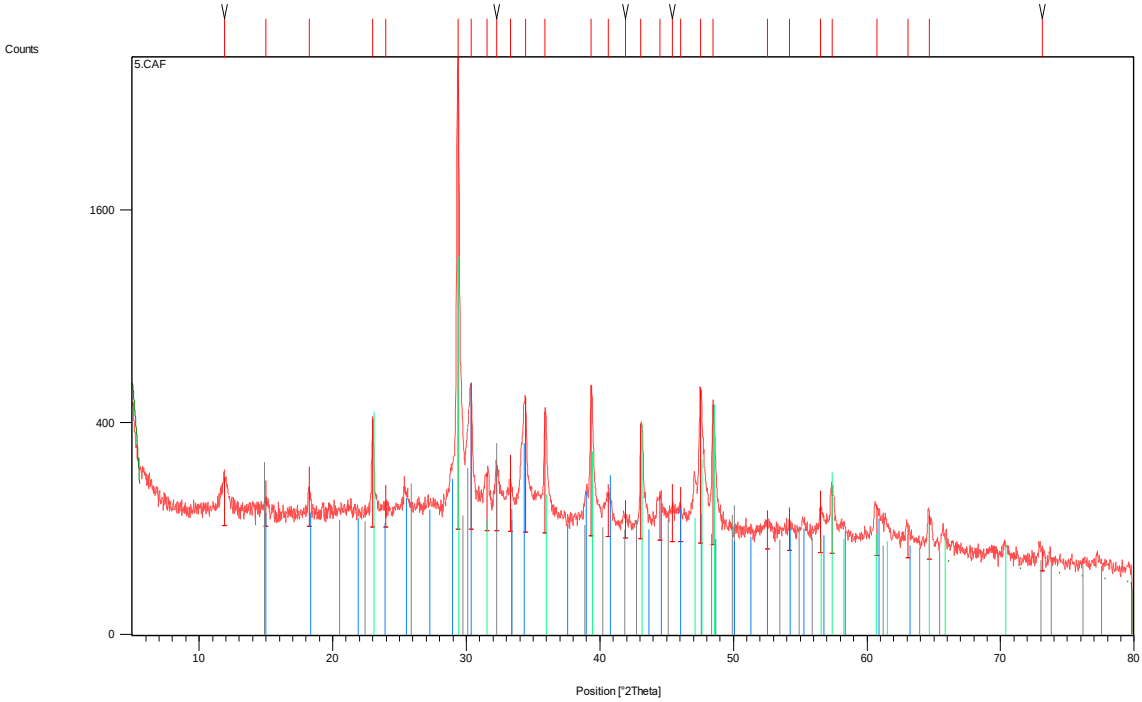

Figure S4. XRD spectrum of the precipitates of 50 µg L^{-1} Cr (VI) with 100 mg L^{-1} Fe (II) and 30 mM hydrogen carbonate (HCO_3^-) buffer in process water.

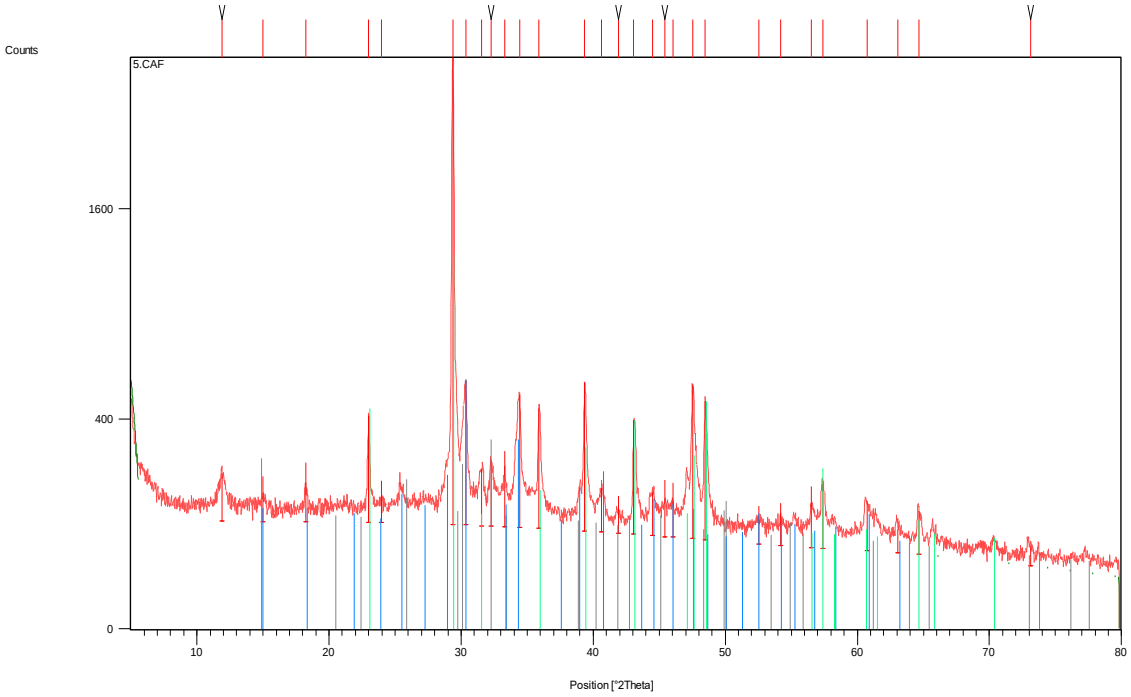

Figure S5. XRD spectrum of the precipitates of 50 μg L^{-1} Cr (VI) with 6 mg L^{-1} Fe (II) and 30 mM hydrogen carbonate (HCO_3^-) buffer in process water.