Supporting Information

Iron Oxides Nanoparticles Immobilized to Mesoporous NH_2-SiO_2 Spheres by Sulfonic Acid Functionalization as Highly Efficient Catalysts

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Table S1 BET surface area and textural data for synthesized different samples

Sample	SBET (m^2/g)	SLangmuir (m^2/g)	SBJH (m2/g)	Vmeso (cm^3/g)	Average pore diameter (nm)
AMAS	287.63	181.52	450.83	0.61	8.49
SA-AMAS	321.13	294.04	420.46	0.52	6.51
Fe_2O_3/SA-AMAS	174.12	153.12	227.55	0.23	5.39

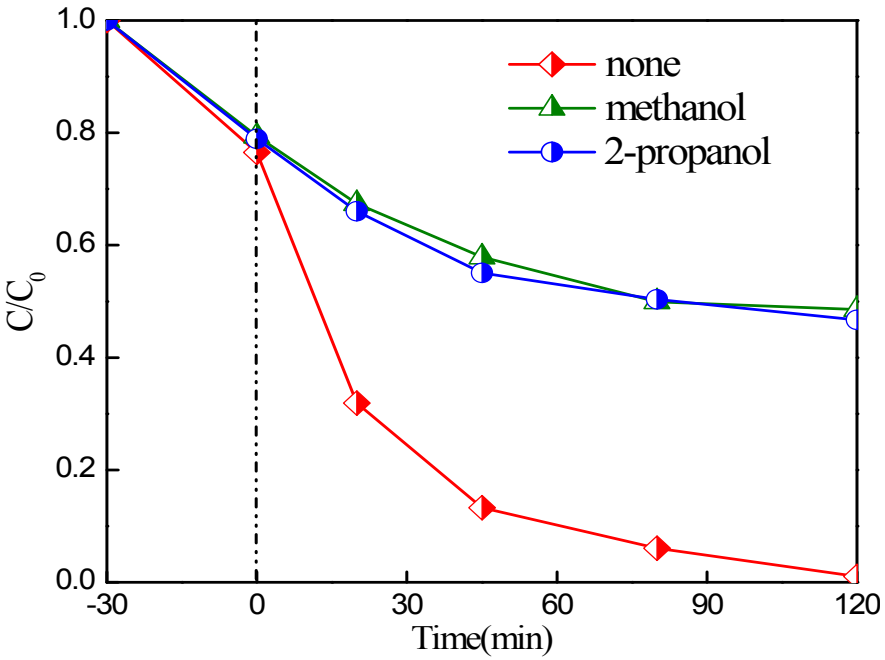

Fig. S1 Effect of methanol and 2-propanol on degradation X-3B by using Fe_2O_3/SA-AMAS as catalyst. (T=298 K, pH=6.0, C_{cat}=0.5 g·l^{-1}, $C_{X\text{-}3B,\,0}$=100 m g·l^{-1}, $C_{H2O2,\,0}$=5.0 mM; methanol: 10 mM; 2-propanol: 10 mM)

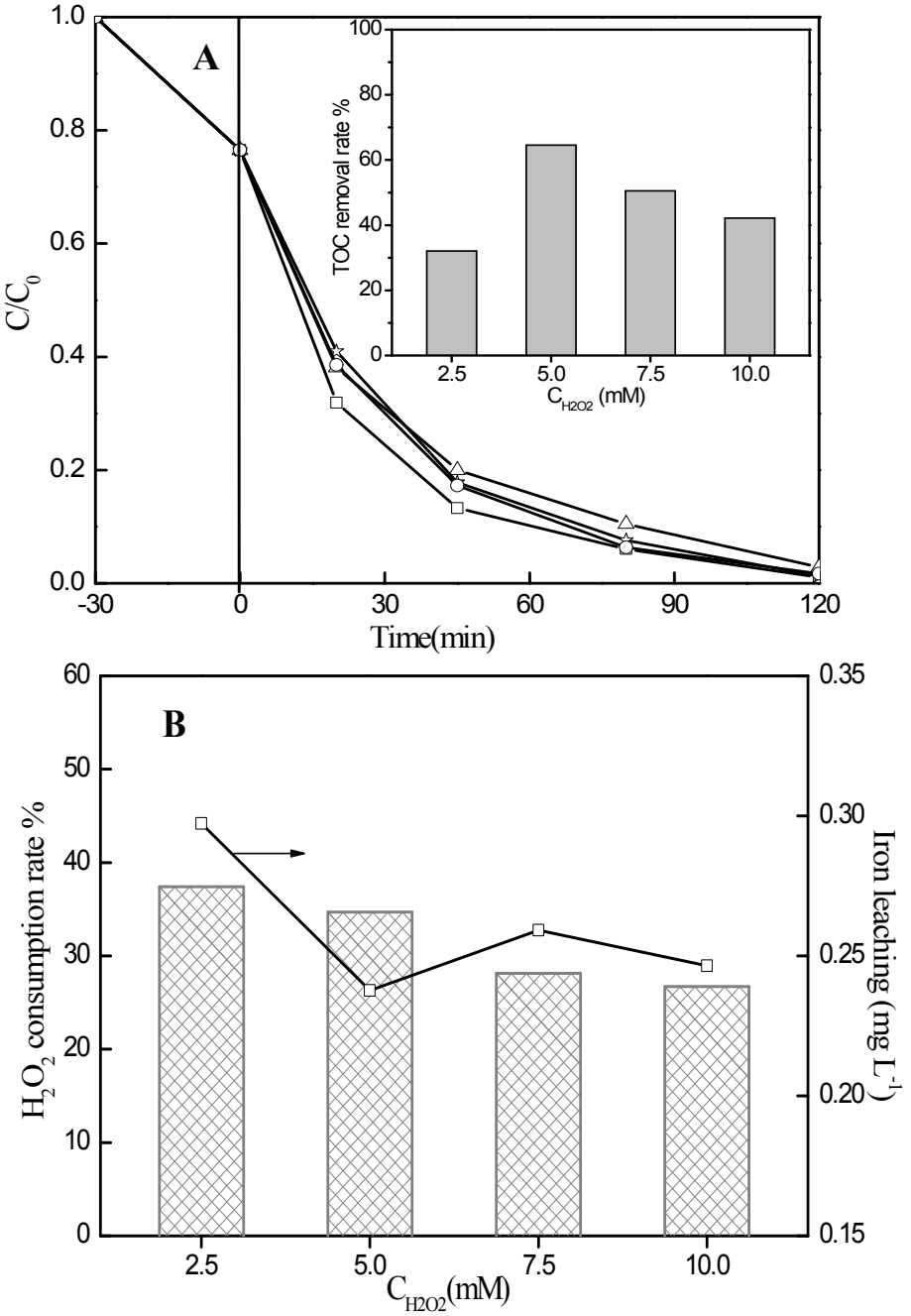

Fig. S2 Effect of H_2O_2 dosage on the degradation and TOC removal rate of X-3B (A), H_2O_2 decomposition and iron leaching (B) (T = 298 K, initial pH = 6.0, $C_{Cat.}$ = 0.5 g·l^{-1}, $C_{X\text{-}3B,\,0}$ = 100 m g·l^{-1}). ∆ 2.5 mM □ 5.0 mM ☆ 7.5 mM ○ 10.0 mM

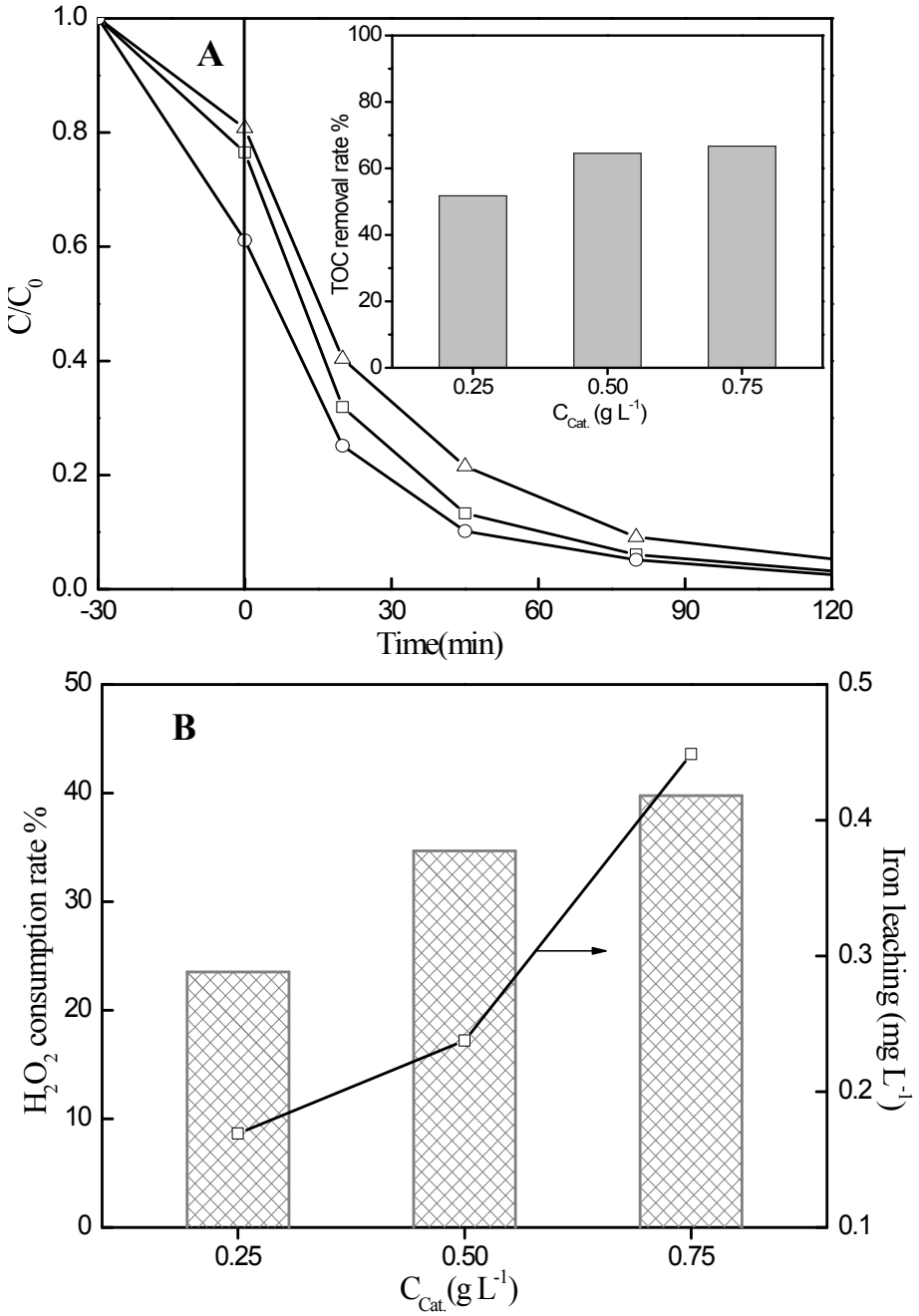

Fig. S3 Effect of catalyst loading on the degradation and TOC removal rate of X-3B (A), H_2O_2 decomposition and iron leaching (B) (T = 298 K, initial pH = 6.0, $C_{X\text{-}3B,\,0}$ = 100 m g·l^{-1}, $C_{H2O2,\,0}$ = 5.0 mM). ∆ 0.25 g·l^{-1} □ 0.50 g·l^{-1} ○ 0.75 g·l^{-1}

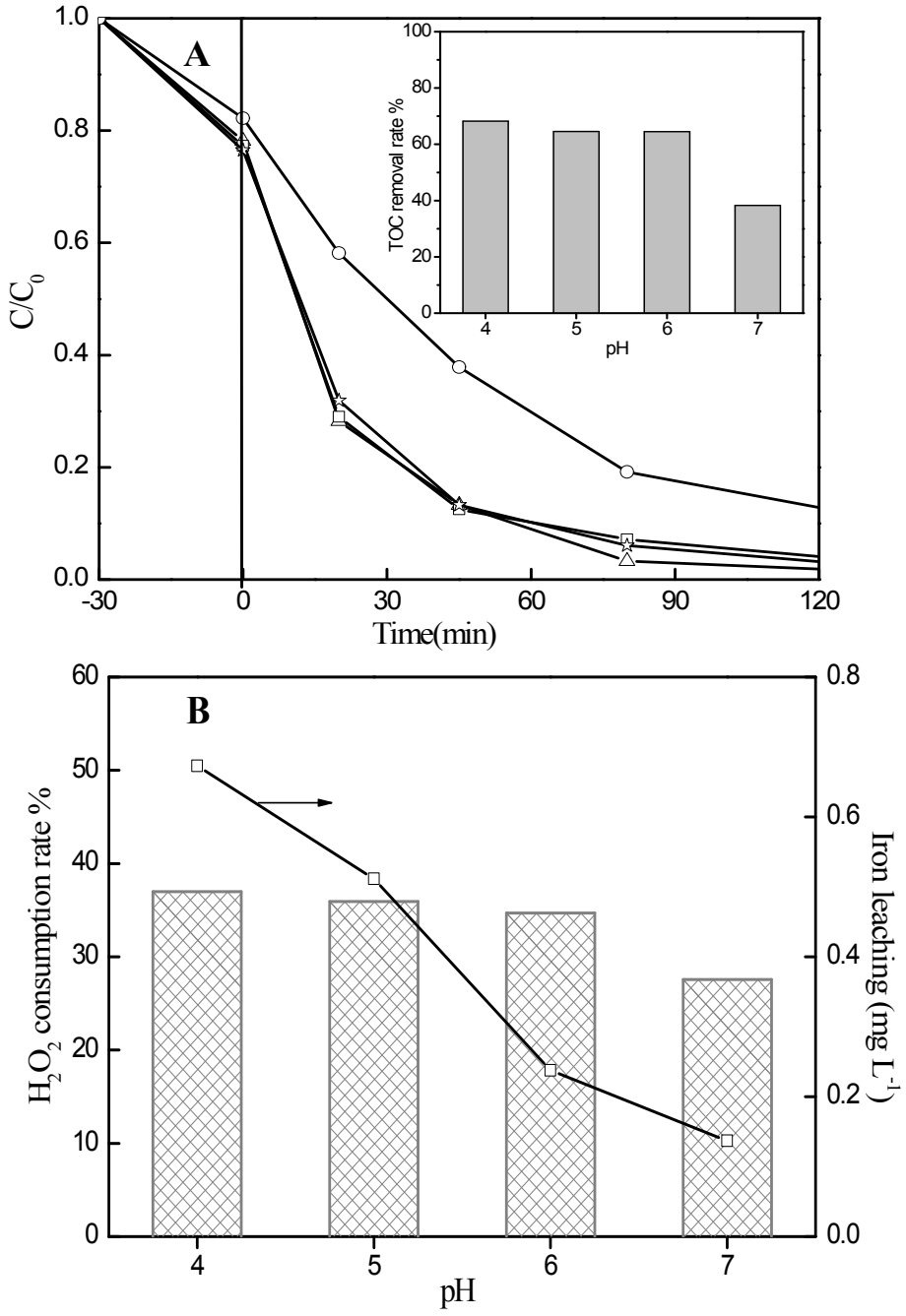

Fig. S4 Effect of initial pH value on the degradation and TOC removal rate of X-3B (A), H_2O_2 decomposition and iron leaching (B) (T = 298 K, $C_{cat.}$ = 0.5 g·l^{-1}, $C_{X\text{-}3B,\,0}$ = 100 m g·l^{-1}, $C_{H2O2,\,0}$ = 5.0 mM). △ 4.0 □ 5.0 ☆ 6.0 ○ 7.0

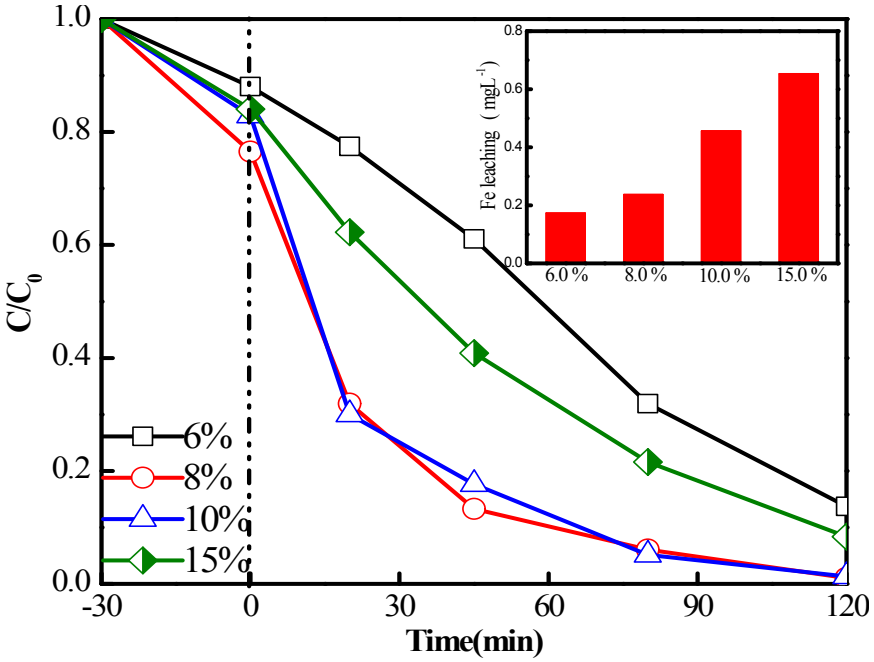

Fig. S5 Effect of Fe loading amount on the catalytic reactivity and the concentration of leached Fe ions for the catalyst in the reaction processes.

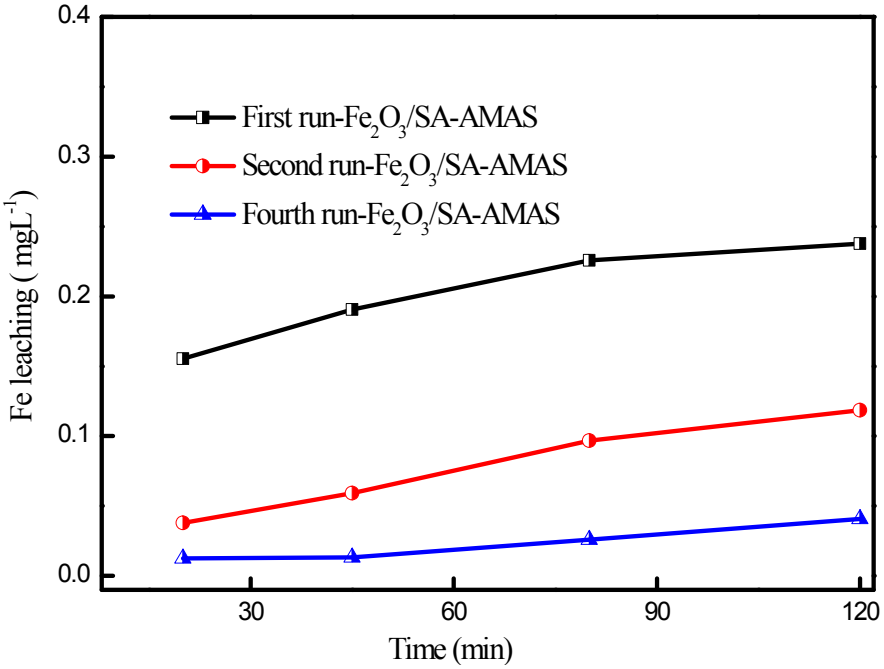

Fig. S6 Concentrations of leached Fe for the catalyst in the reaction processes.

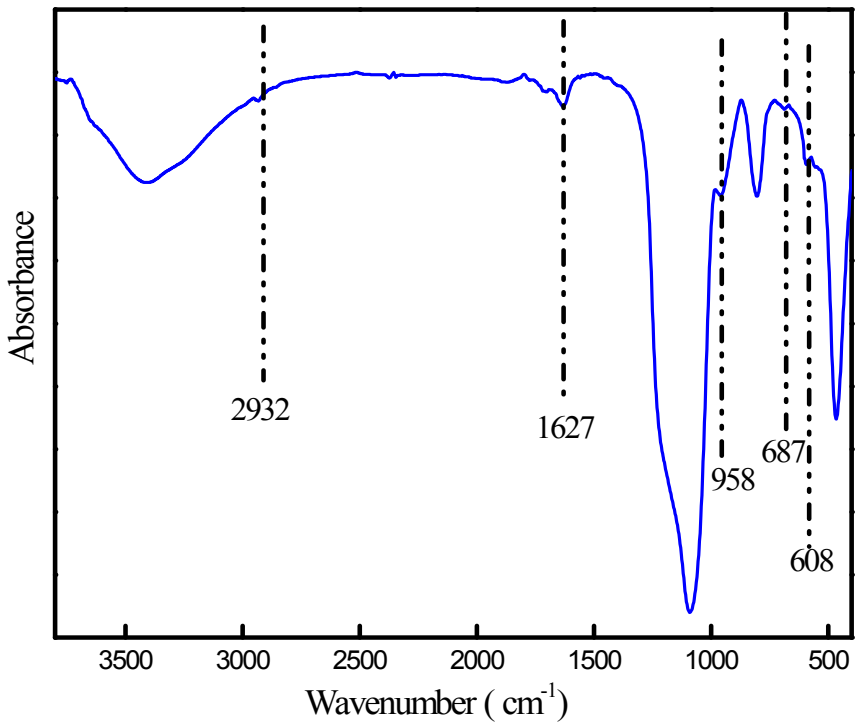

Fig. S7 FTIR spectra of Fe_2O_3/SA-AMAS used after three cycles.

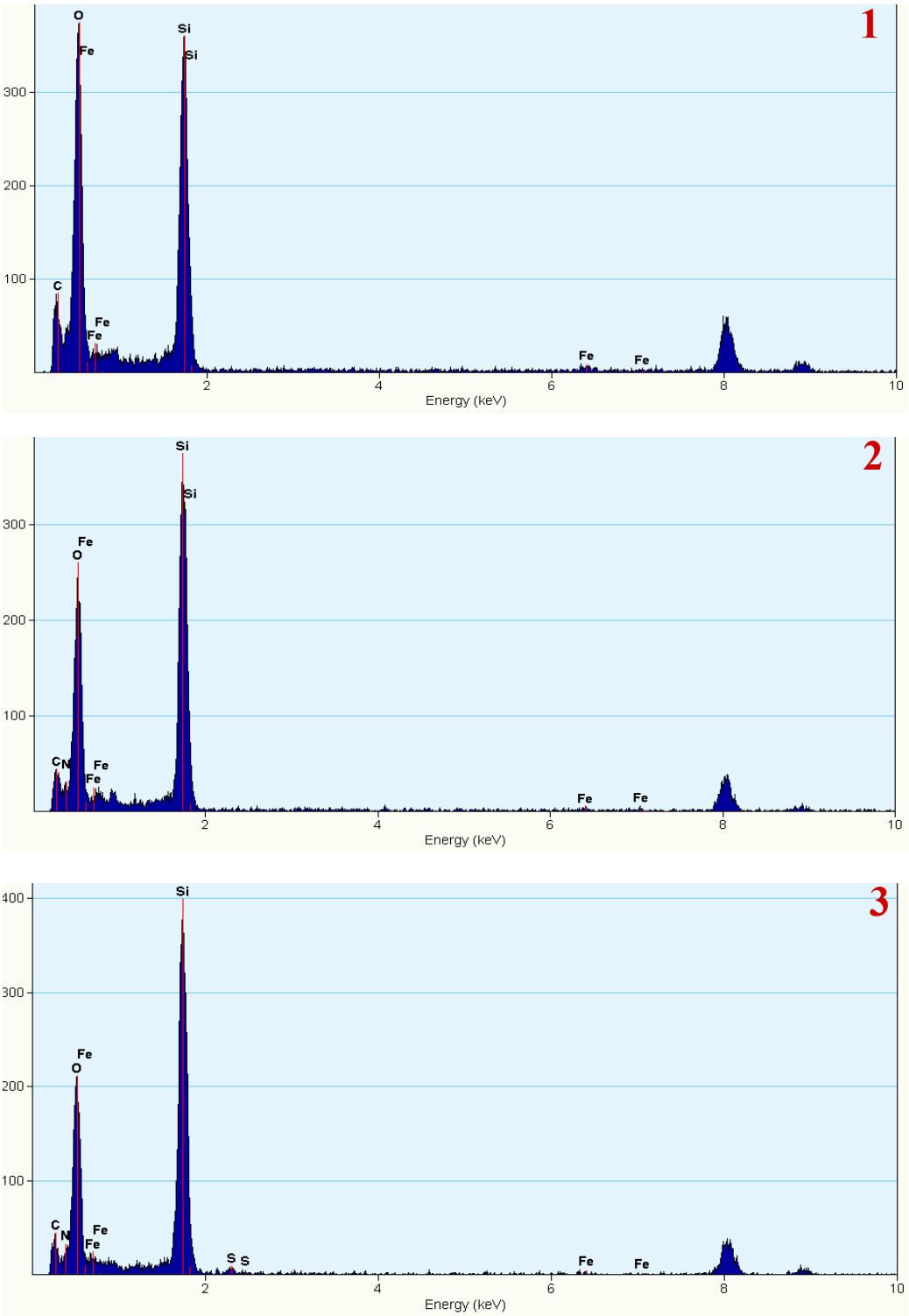

Fig. S8 Element analysis of Fe_2O_3/AMS (a), Fe_2O_3/AMAS (b), and Fe_2O_3/SA-AMAS (c) at three points.