

Supporting Information

Striking influence of Fe₂O₃ on the “catalytic carbonization” of chlorinated poly(vinyl chloride) into carbon microspheres with high performance in the photo-degradation of Congo red

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Table S1 The effect of different catalyst (added amount: 5 g/100g CPVC) on the state of carbon product from commercial CPVC microspheres at 700 °C.

Product state	Catalyst
Microspheres	Fe ₂ O ₃ , Fe(OH) ₃ and Fe ₃ O ₄ . (Total of 3 kinds)
“Sponge-like” carbon lump	(1) no catalyst;
	(2) common nickel catalyst: Ni ₂ O ₃ , NiO, F-NiO, Ni(OH) ₂ , NiCl ₂ , NiSO ₄ , Ni(NO ₃) ₂ , NiCO ₃ ·2Ni(OH) ₂ ·4H ₂ O, Ni(COO) ₂ and Ni(CO) ₅ ; (10 kinds)
	(3) common cobalt catalyst: Co ₂ O ₃ , Co ₃ O ₄ , Co(NO ₃) ₂ , Co(CH ₃ COO) ₂ and CoCl ₂ ; (5 kinds)
	(4) common iron catalyst: Fe(NO ₃) ₃ , FeCl ₃ , FeCl ₂ , Fe powder, FeSO ₄ , FeS and Fe(C ₅ H ₅) ₂ ; (7 kinds)
	(5) common other catalyst: CuO, Cu(NO ₃) ₂ , CuS, CuCl, CuBr, CuSO ₄ , Cu ₂ (OH) ₂ CO ₃ ; MgCl ₂ , MgO, Mg powder, MgCO ₃ , Mg(NO ₃) ₂ ; AgCl, AgNO ₃ ; Cd(OH) ₂ ; NH ₄ Cl, NH ₄ Br, BaCl ₂ , SnCl ₄ , SnCl ₂ , SnO ₂ ; MnO ₂ , La(NO ₃) ₃ , HZSM (Si/Al=25, 100, 300; NKF-6β; USY); ZnO (nanoscale), ZnO (microscale), ZnSO ₄ , ZnCl ₂ , Zn powder, Zn(NO ₃) ₂ ; CaCl ₂ , CaSO ₄ , Ca(OH) ₂ ; NaCl, Na ₂ SO ₄ , ZrOCl, Ce(NO ₃) ₃ . (41 kinds)
	(Total of 63 kinds)

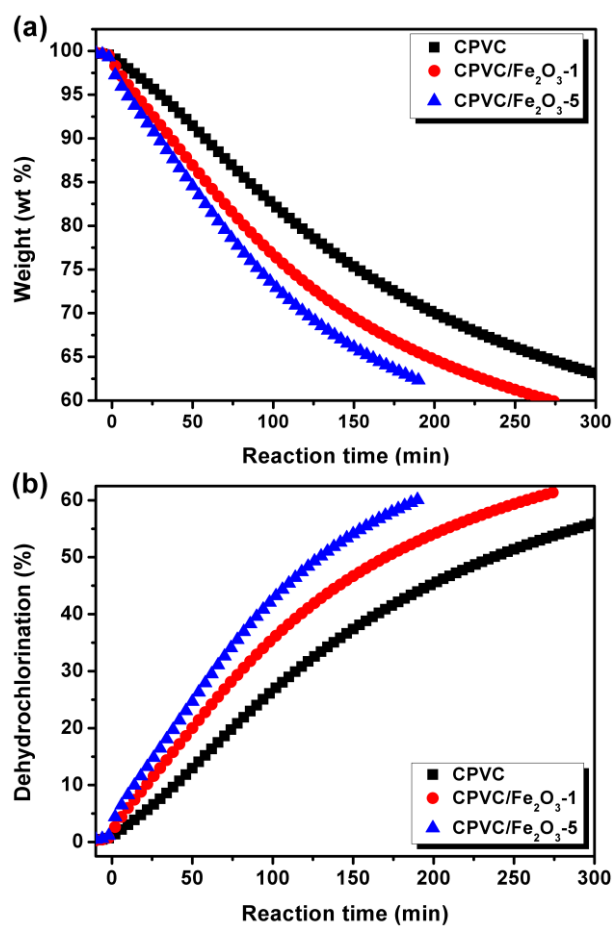


Fig. S1 TGA curves (a) and dehydrochlorination behaviour (b) of CPVC, CPVC/Fe₂O₃-1 and CPVC/Fe₂O₃-5 through time scanning at 225 °C under nitrogen atmosphere.