

## Supplementary Material

### Nanomaterial synthesis in ionic liquids and their use on the photocatalytic degradation of emerging pollutants

Raquel Corchero<sup>1</sup>, Rosario Rodil<sup>2</sup>, Ana Soto<sup>1</sup>, and Eva Rodil<sup>1\*</sup>

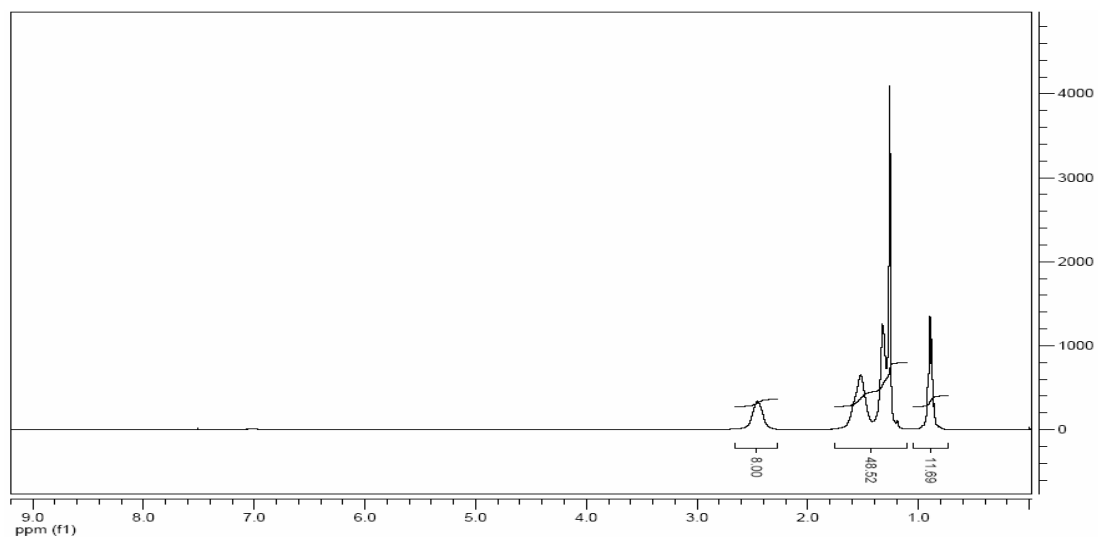
<sup>1</sup> CRETUS Institute, Department of Chemical Engineering, Universidade de Santiago, E-15782 Santiago de Compostela, Spain; raquel.corchero@rai.usc.es (RC); ana.soto@usc.es (AS)

<sup>2</sup> Department of Analytical Chemistry, Nutrition and Food Science, Universidade de Santiago de Compostela, E-15782 Santiago de Compostela, Spain; [rosario.rodil@usc.es](mailto:rosario.rodil@usc.es) (RR)

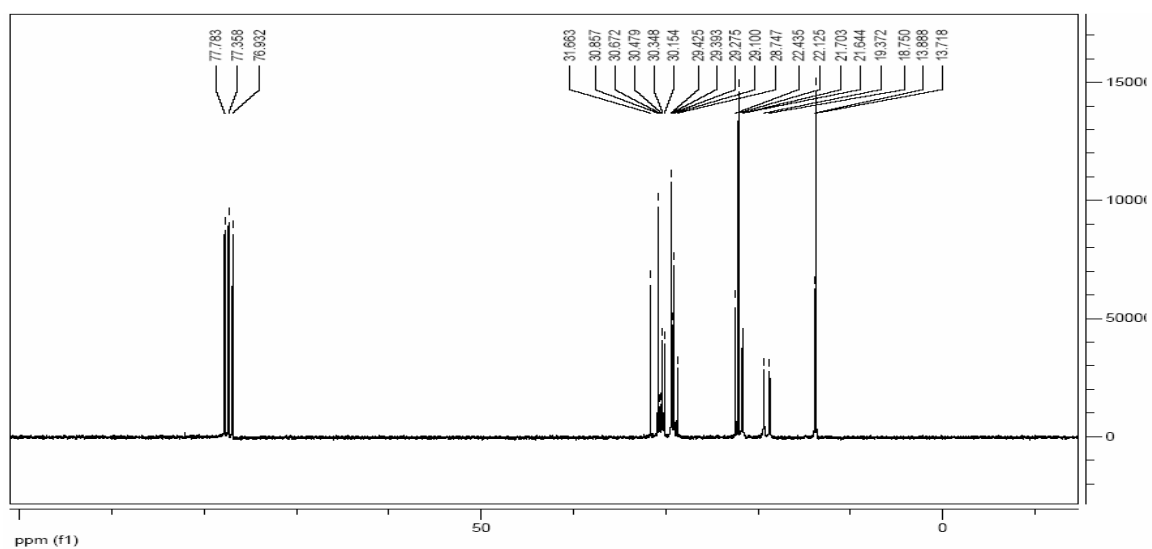
\* Correspondence: [eva.rodil@usc.es](mailto:eva.rodil@usc.es) (ER)

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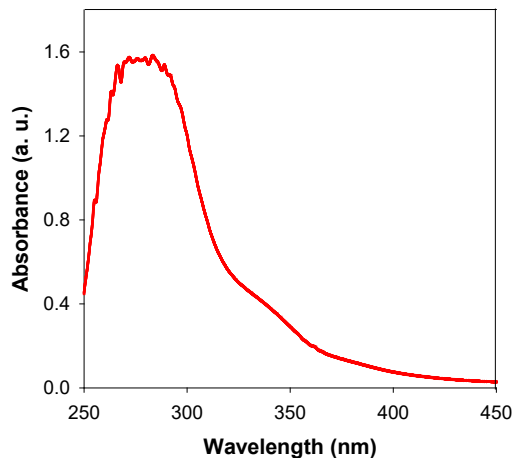


$^1\text{H}$  NMR (300 MHz,  $\text{CDCl}_3$ )  $\delta$  ppm 0.80-0.97 (unresolved, 12H,  $4 \times \text{CH}_3$ ), 1.15-1.70 (unresolved, 48H,  $\text{PCH}_2(\text{CH}_2)_{12}\text{CH}_3$  and  $3 \times \text{PCH}_2(\text{CH}_2)_4\text{CH}_3$ ), 2.35-2.65 (unresolved, 8H,  $4 \times \text{PCH}_2$ ).

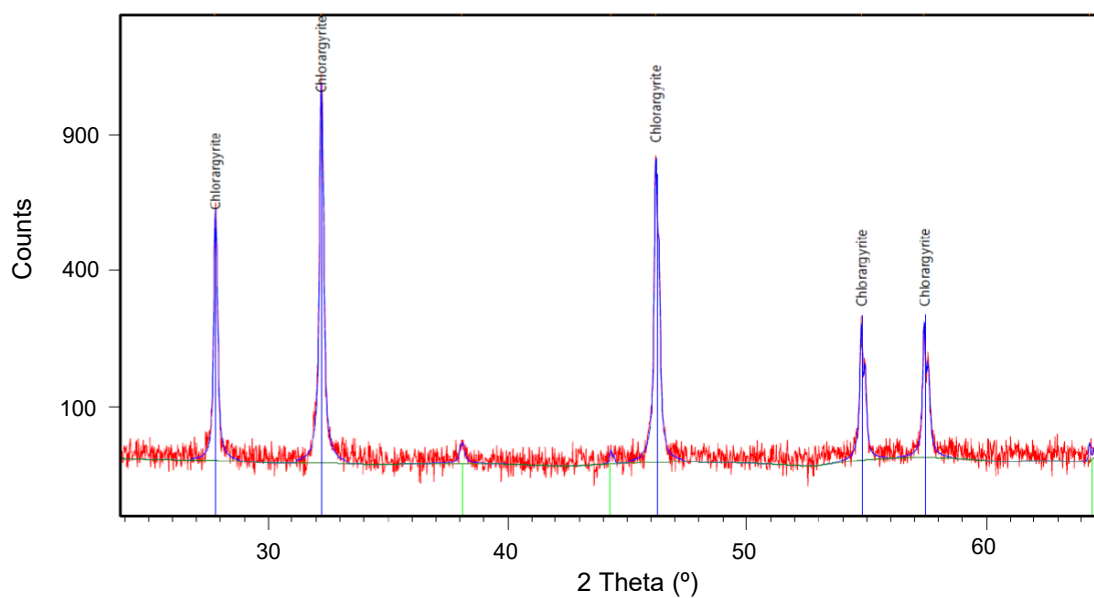


$^{13}\text{C}$  NMR (75.4 MHz,  $\text{CDCl}_3$ )  $\delta$  ppm 12-32 (unresolved,  $\text{P}(\text{CH}_2)_{13}\text{CH}_3$  and  $3 \times \text{P}(\text{CH}_2)_5\text{CH}_3$ ).

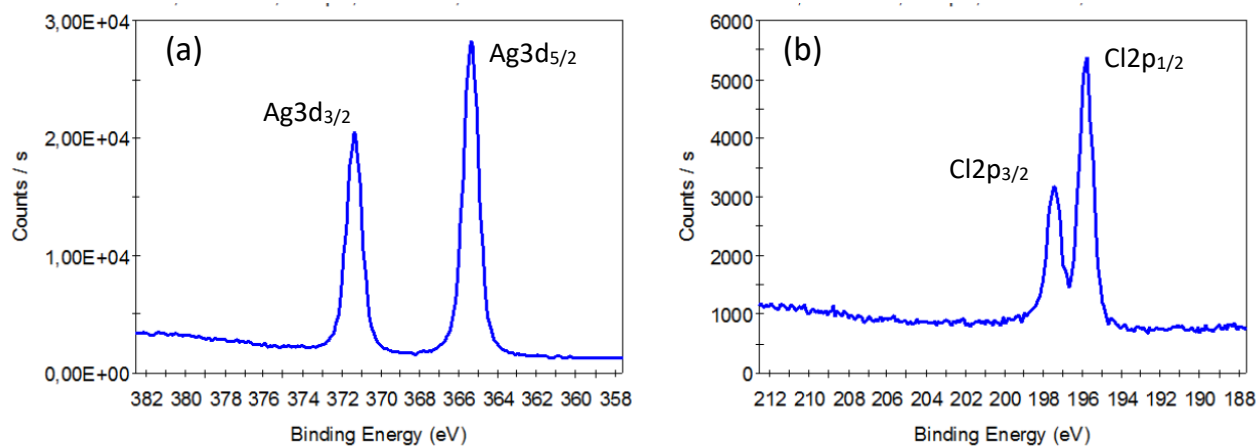
**Figure S1:**  $^1\text{H}$  and  $^{13}\text{C}$  spectra of  $[\text{P}_{6, 6, 6, 14}]\text{Cl}$



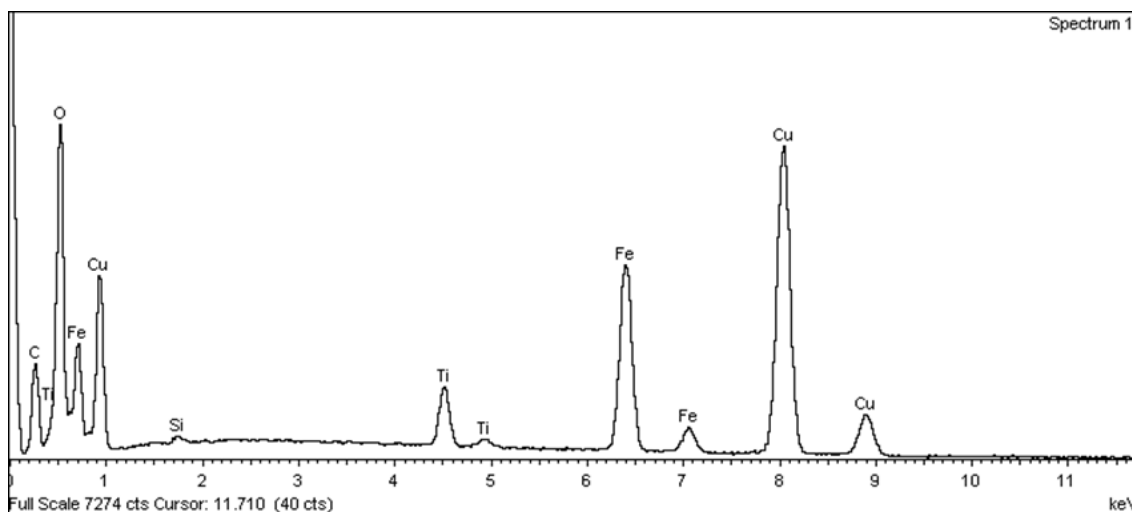
**Figure S2:** UV-Vis-absorbance of AgCl nanoparticles



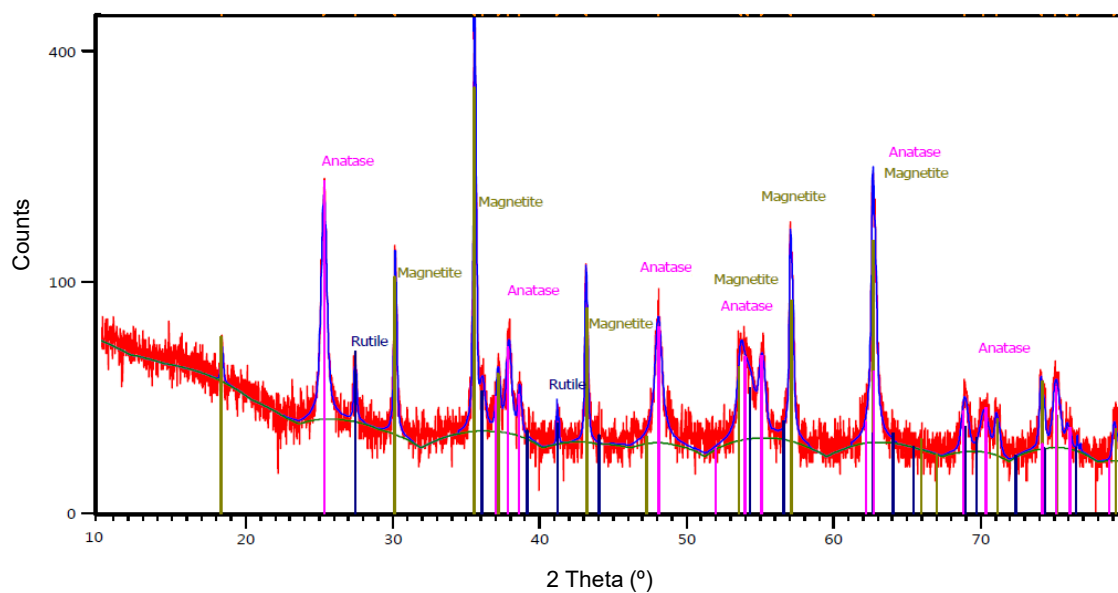
**Figure S3:** XRD diffraction pattern of AgCl nanoparticles



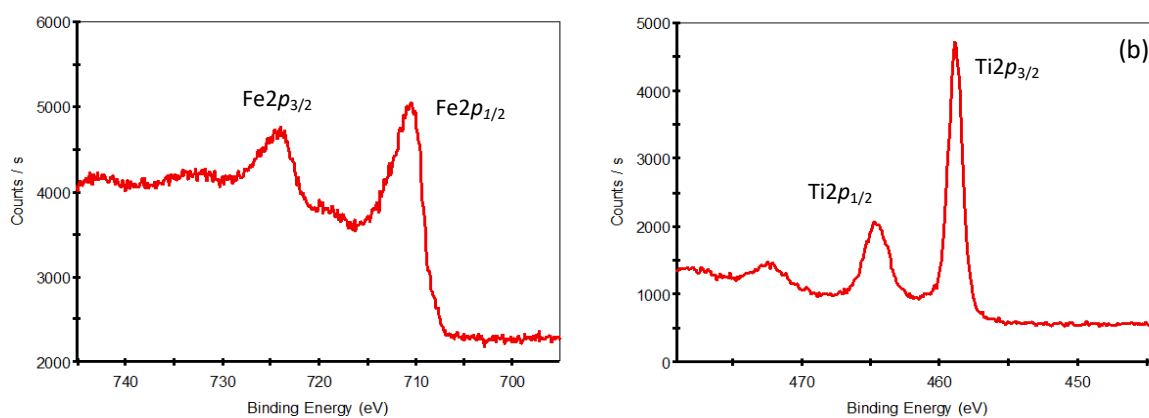
**Figure S4:** XPS spectra of AgCl nanoparticles: Ag3d (a) and Cl2p (b) scans



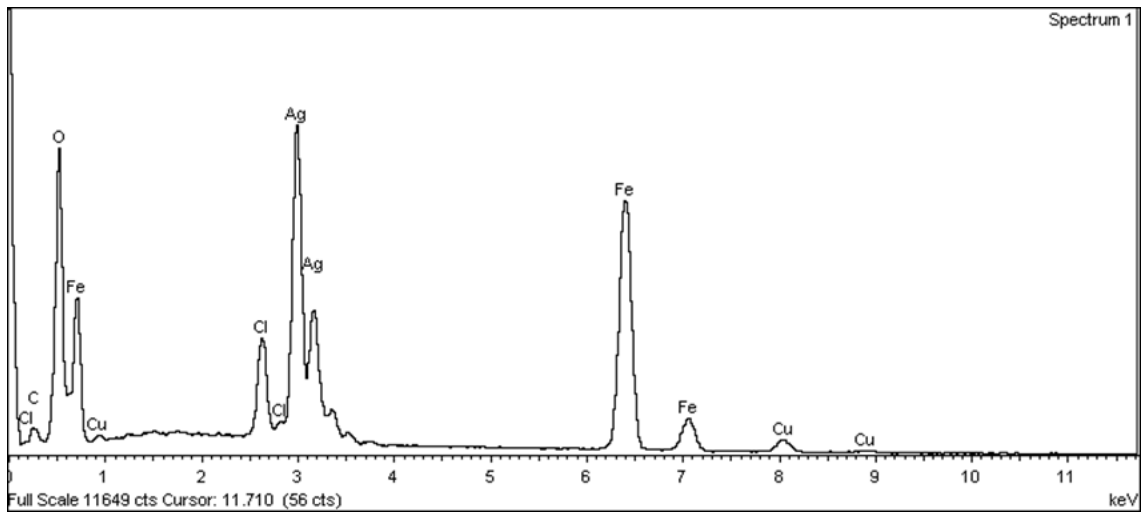
**Figure S5:** EDS spectrum of  $\text{TiO}_2@\text{Fe}_3\text{O}_4$  nanocomposite



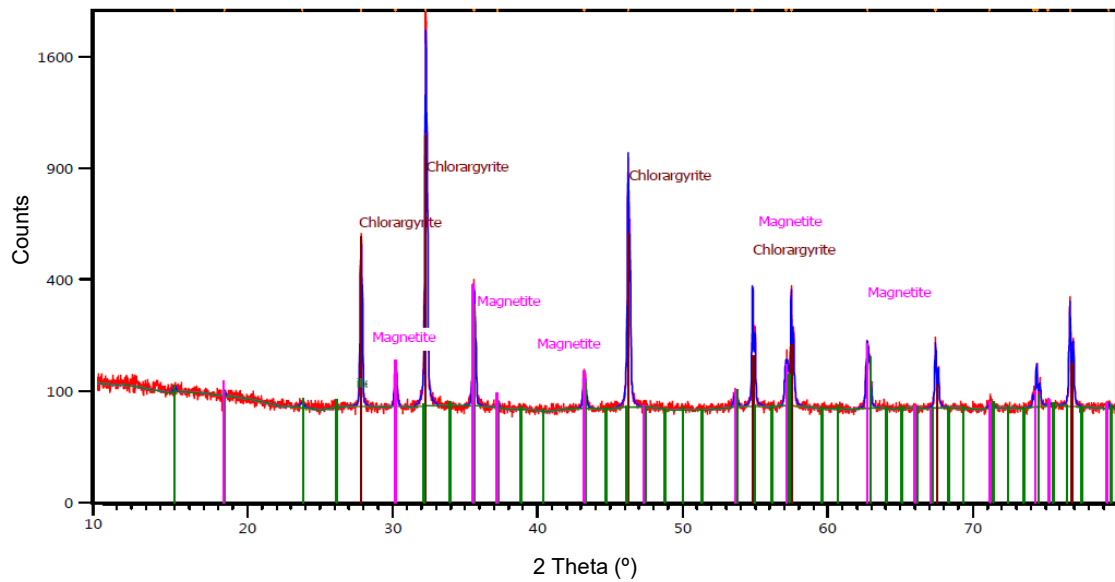
**Figure S6:** XRD patterns of  $\text{TiO}_2@\text{Fe}_3\text{O}_4$  nanocomposite



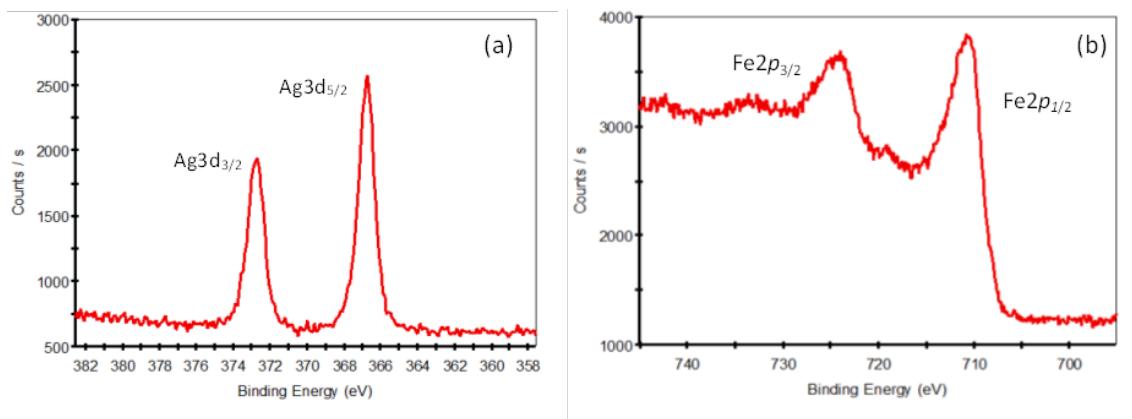
**Figure S7:** XPS spectra of  $\text{TiO}_2@\text{Fe}_3\text{O}_4$  nanocomposite: Fe2p (a) and Ti2p (b)



**Figure S8:** EDS spectrum of AgCl@Fe<sub>3</sub>O<sub>4</sub> nanocomposite



**Figure S9:** XRD patterns of AgCl@Fe<sub>3</sub>O<sub>4</sub> nanocomposite



**Figure S10:** XPS spectra of AgCl@Fe<sub>3</sub>O<sub>4</sub> nanocomposite: Ag3d (a) and Fe2p (b)