

SUPPLEMENTARY INFORMATION

Role of pH in the aqueous phase reactivity of zerovalent iron nanoparticles with Acid Orange 7, a model molecule of azo dyes.

F. S. Freyria,^{1,2} S. Esposito,³ M. Armandi,¹ F. Deorsola,¹ E. Garrone¹ and B. Bonelli^{1,*}

¹*Department of Applied Science and Technology and INSTM Unit of Torino-Politecnico, Corso Duca degli Abruzzi 24, Politecnico di Torino, I-10129 Turin (Italy).*

²*Department of Chemistry, Massachusetts Institute of Technology, 77 Massachusetts Ave, 02139 Cambridge, (MA, USA)*

³*Department of Civil and Mechanical Engineering, Università degli Studi di Cassino e del Lazio Meridionale, Via G. Di Biasio 43, 03043 Cassino, FR, Italia*

*Corresponding author: barbara.bonelli@polito.it

1.1. UV-vis spectra of 1-amino-2-naftol (1A2N)

Curiously, the spectrum of this substance is not readily available in the literature. Moreover, three versions of the molecule may be present depending on the acidity/basicity of the solution. Figures S11 and SI 2 report the UV-Vis spectra collected for the pH range 0-12, where the molecule is expected to assume different forms, namely protonated at the amino group, neutral or in a phenate form. Changes in the spectra are indeed observed, but are not astonishing. When passing from acidic to neutral conditions, a shift of the main absorption at 250 nm of only about 7 nm is seen. This suggests that this transition is of the $n-\pi^*$ type, where the non bonding pair resides on the oxygen atom. No further relevant changes are observed when moving to strongly basic conditions. No appreciable changes were observed in the presence of either Fe^{2+} or Fe^{3+} ions at different pH values.

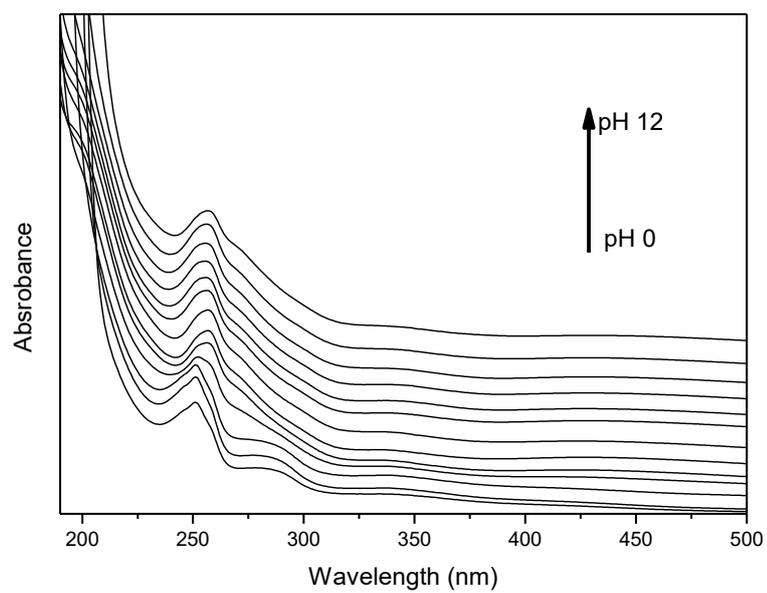
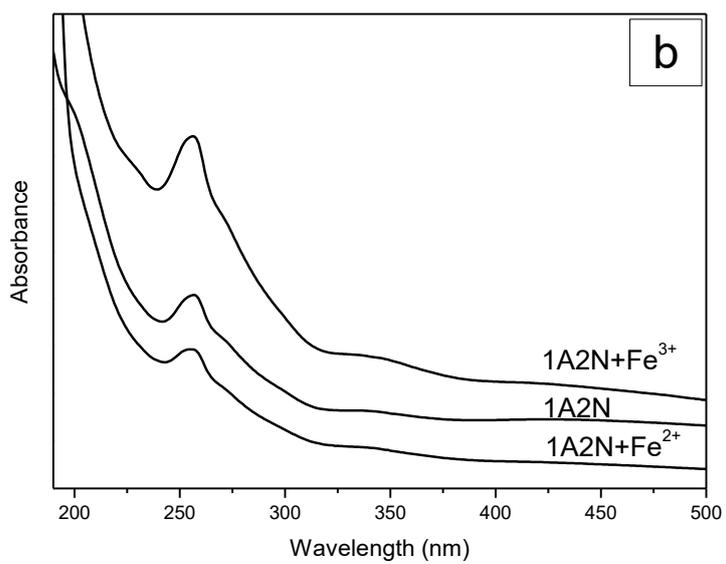
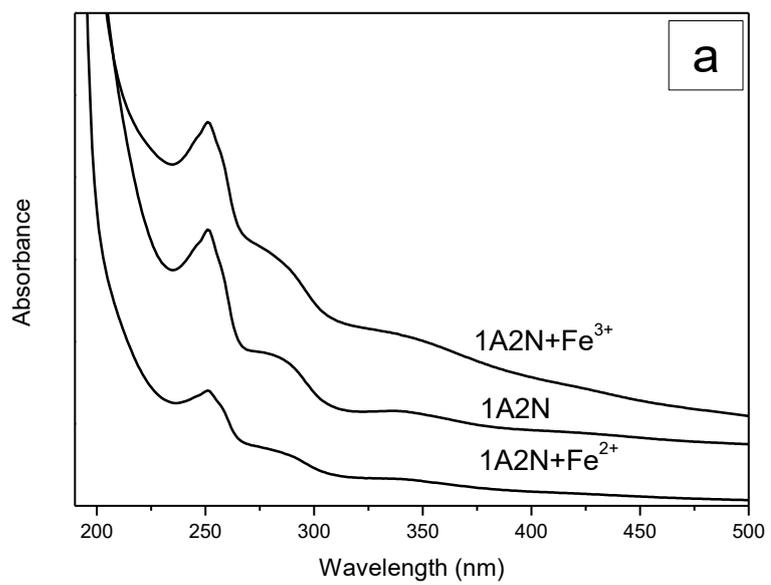


Figure SI 1 UV-Vis spectra of 1A2N in a pH range between 0.00 and 12.00.



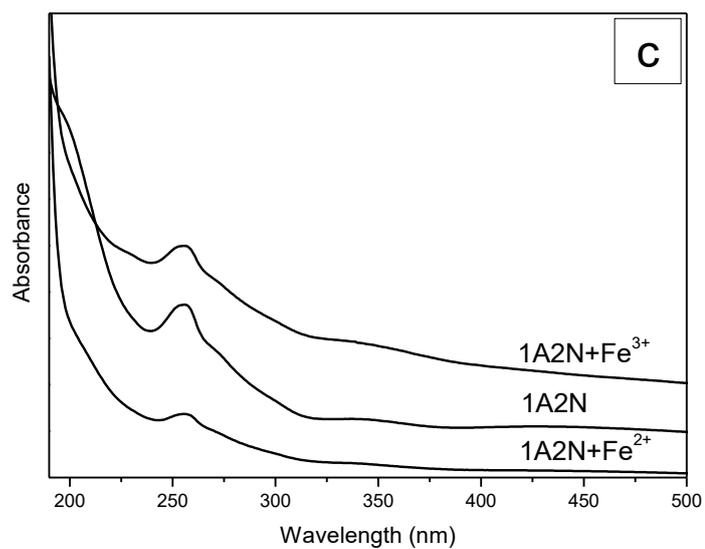


Figure SI 2 UV-Vis spectra of 1A2N solution both in the absence and in the presence of either Fe²⁺ and Fe³⁺ cations at pH=2.00 (section a); pH=6.00 (section b) and pH=8.00 (section c).