

Activation parameters and Hammett plots for the reactions of a pair of isomeric Fe^{IV}(O) non-heme complexes

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Oxoiron(IV) species are common intermediates in the catalytic cycle of several non-heme iron-dependent enzymes and synthetic model complexes. The reaction of $[\text{Fe}^{\text{II}}(\text{CF}_3\text{SO}_3)_2(\text{RPyNMe}_3)]$ complexes with Bu_4NIO_4 in acetonitrile solution at low temperatures leads to formation of a pair of isomeric oxoiron(IV) species that differ in the position of the oxo ligand with respect to the pyridine donor (*cis* and *trans*). In this presentation, the results of kinetic studies on the isomerization process and on the reaction of both intermediates in Hydrogen Atom Transfer and Oxygen Atom Transfer processes will be discussed. Special attention will be paid to the values derived for the activation parameters and to the Hammett plots obtained by using *R* substituents with different donor-acceptor properties.

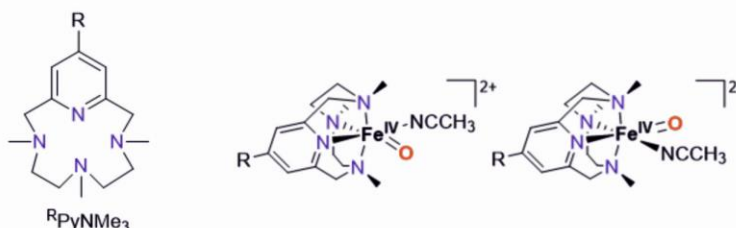


Figure 1. Structure of the rPyNMe3 ligands and of the two isomers of the oxoiron(IV) complexes

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