

# Flow Analysis XIII



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## Sequential injection application of an expressly designed 3-hydroxy-4-pyridinone functionalized with a polyethylene glycol chain for the spectrophotometric determination of iron

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In a recent work, low toxicity 3-hydroxy-4-pyridinone (3,4-HPO) chelators were tested as chromogenic reagents and successfully applied to bathing waters [1]. However, its efficiency was limited by the ligand solubility as the sensitivity for the determination of iron depends on the ligand [1]. In this scenario, it would be advantageous to obtain a more soluble 3,4-HPO ligand; this is feasible as the structure of 3,4-HPO allows tailoring of their hydrophilic/lipophilic balance (HLB) without significantly changing its chelating properties. The variation in HLB can be achieved by simply introducing appropriate substituents on the endocyclic nitrogen atom of the pyridinone ring. In this work, a more soluble 3,4-HPO was synthesized by introducing an ethylene glycol chain in the endocyclic nitrogen atom of the pyridinone framework. The efficiency of this new compound in solution as a novel chromogenic reagent for iron was tested in a sequential injection system. The complexation reaction of the synthesised ligand and iron(III) was studied in-line and applied to two certified waters samples.

### References

<sup>1</sup> R.B.R. Mesquita, R. Suárez, V. Cerdà, M. Rangel, A.O.S.S. Rangel, *Talanta* 108 (2013) 38-45.

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