

Highly Symmetric Multidentate Ligands for Catalysis and Functional Materials

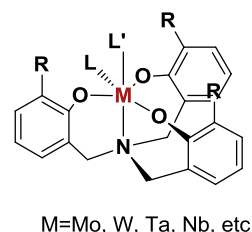
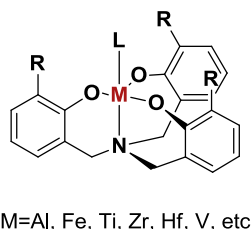
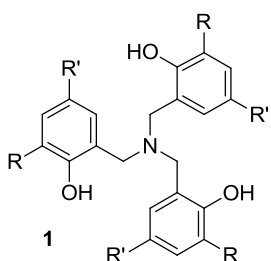
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Abstract

The use of modular, multidentate ligands is one of the current trends in catalyst design. Advantages include the high stability of the corresponding metal complexes, which often allows low catalyst concentrations without loss of catalyst integrity. Secondly, a nearly complete filling of all coordination sites of the metal by a single ligand reduces the chances of formation of multimetric and often undefined metal-species under catalytic conditions. The presence of only a single catalytically active species greatly facilitates mechanistic studies and catalyst optimization.

In the last years our group has been involved in the study of early transition metal complexes with triphenolate ligands and their application in catalysis.[1,2]



In this communication, we will report on most recent results related to the effective post modifications of the ligand backbones that allow obtaining supramolecular hybrid functional systems with dimensions spanning from single molecules to much larger aggregates. In particular, the synthesis and characterization of novel systems bearing multiple ion-TAGs, gelator, fluorescent or organic radical residues will be described together with preliminary results of applications in catalysis and functional materials.

References

- [1]. G. Licini, M. Mba, C. Zonta, *Dalton Trans.* **27**, (2009) 5265; M. Mba, C. Zonta, G. Licini (2014) "Coordination chemistry and applications of nitrilotris (N-methylenephenoxy)-metal complexes" in *Patai's Chemistry of Functional Groups*, edited by I. Marek. John Wiley & Sons, Ltd: Chichester, UK.
- [2]. C. Zonta, G. Licini *Chem. Eur. J.*, **29**, (2013) 9438 and reference therein.