Influence of isomers on homogeneous catalysis with oxorhenium(V) complexes

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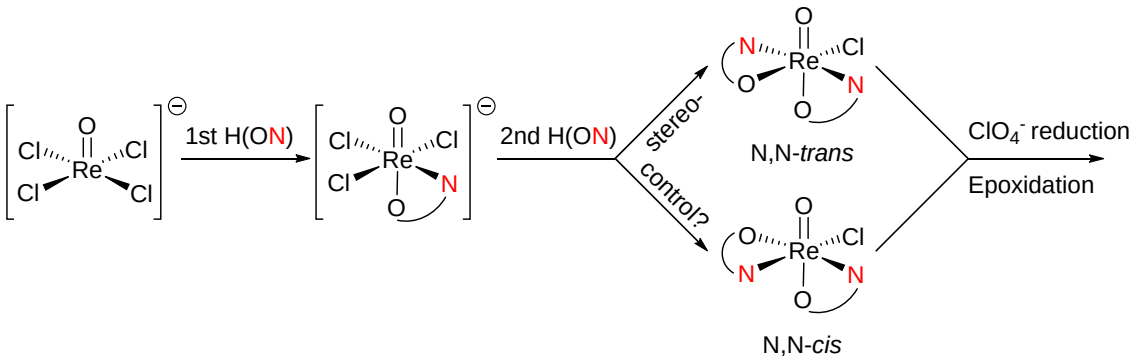
Oxorhenium(V) complexes of the type $[ReOCl(ON)_2]$ (with ON = bidendate ligand) belong to a unique class of catalysts which are capable to both epoxidize olefins as well as reduce small oxoanions.[1,2] In the case of catalytic perchlorate reduction, stereoisomers play a vital role for catalyst activity, while for epoxidation the influence seems less important. Over the course of our investigations, we could isolate and characterize several new and unexpected oxorhenium(V) isomers. Their formation, possible elements of stereo-control in their synthesis and effects on catalytic activity will be discussed.



[1] Schachner, J. A.; Terfassa, B.; Peschel, L. M.; Zwettler, N.; Belaj, F.; Cias, P.; Gescheidt, G.; Mösch-Zanetti, N. C. *Inorg. Chem.* **2014**, *53*, 12918–12928.

[2] Schachner, J. A.; Berner, B.; Belaj, F.; Mösch-Zanetti, N. C. *Dalton Trans.* **2019.** DOI: 10.1039/c9dt01352k.