

## Rhodium(I) *N,O* Hydroxamic Acid Complexes as Model Catalysts

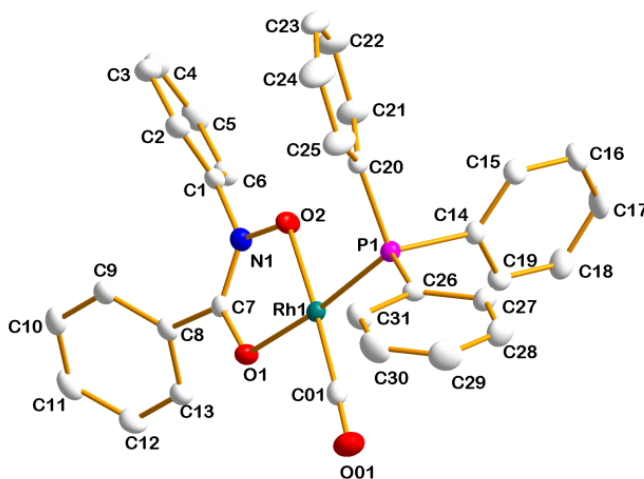
Mokete Motente, Johan Venter, and Alice Brink

*Department of Chemistry, University of the Free State, Bloemfontein 9300, South Africa*

*mokete.motente@gmail.com*

Rhodium metal complexes are some of the key catalysts utilised in homogenous catalysis, and one of the most crucial considerations when forming a metal complex is the choice of ligand systems due to their influence on the reactivity of the metal atom,[1] hence hydroxamic acids were used for the purposes of this study due to their high metal affinity.[2] Phosphine ligands on the other hand were utilised due to their unique electronic and steric properties and it is known that the presence of phosphine ligands in rhodium systems also gives way to more active, highly selective catalysts which are reactive under milder reaction conditions.[3]

The overarching aim of this study was therefore to synthesise carbonyl phosphine Rhodium(I) complexes using *O,O* and *N,O*-hydroxamate bidentate ligands as model catalysts and they were successfully characterised with various characterisation techniques including single crystal X-ray diffraction (SCXRD), and shown in figure 1 below is the crystal structure of one of the Rhodium(I) metal complexes. The study also focused on two important reactions, oxidative addition and migratory insertion which are the two crucial steps that take place during the Monsanto catalytic process.



**Figure 1:** Structural representation of Crystal structure of one of the Rh(I) metal complexes synthesised during the study.

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