

# Catalytic activity and visible spectroscopy of [Rh(norbornadiene)Cl]<sub>2</sub>/p-RC<sub>6</sub>H<sub>4</sub>)<sub>3</sub>P system in methanol

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## **Abstract**

The catalytic hydrogenation of hex-1-ene in methanolic solution with [Rh(norbornadiene)Cl]<sub>2</sub>/(p-RC<sub>6</sub>H<sub>4</sub>)<sub>3</sub>P (R=H, Me or OMe) systems prepared in situ has been measured. The catalytic activity shows a dependence on the ageing of the catalyst precursor solution in the presence of air. A spectroscopic study (visible region) has been carried out for the system with triphenyl phosphine and shows degradation with the formation of [Rh(norbornadiene)PPh<sub>3</sub>Cl] as an intermediate. It was demonstrated that the spectral changes and the consequent catalytic activity are due to PPh<sub>3</sub> loss because of the oxygen dissolved in the media.

**Keywords** Oxygen, Hydrogenation, Spectroscopy, Methanol, Catalysis