

# Turkish Journal of Chemistry

Turkish Journal

of


Chemistry

Synthesis of a Ruthenium Complex Bound to a Polyimide Matrix: Investigating the Catalytic Properties in a Hydrosilylation Reaction

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**Abstract:** 3,6-Bis(dimethylamino)acridine(hexamethylbenzene)dichlororuthenium(II) was used as a tricyclic heteroatomic monomer to prepare polyimides from the corresponding dianhydrides by solution condensation. The ruthenium complex monomer was synthesized starting from  $[\text{RuCl}_2(\text{HMB})]_2$  and 3-6-bis(dimethylamino)acridine. The polymers had inherent viscosities of 1.77 to 2.11 and were soluble in most polar solvents. The glass transition temperatures were in the range of 204 to 298 °C and the 10% weight loss in the range of 506-626 °C, depending upon the structure of the dianhydride monomer. The catalytic activity of the polyimides tested in a hydrosilylation reaction of acetophenone was up to 90%. Leaching of ruthenium into the reaction mixture, found to be in the range of 60-75 ppm, was an indication of reduced catalyst bleeding.

**Key Words:** Heterogeneous catalysis, Ruthenium, Polyimide, Hydrosilylation

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Turk. J. Chem., **30**, (2006), 93-101.

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