Preparation of Si based bis oxazoline – transition metal Complex, as a catalyst for alkene polymerisation

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Abstract

Many scientists have done many researches about bisoxazolines. As a result of the strong affinity of the oxazolines nitrogen for various metals, bis oxazolines readily form complexes which can be used as catalysts in asymmetric synthesis. Chiral bisoxazoline ligands have been successfully used in asymmetric catalysis of a variety of reactions for the past decade.

So far nobody has tried out making a bisoxazoline catalyst out of Si. In the periodic table both Si & C belong to the same group (group IV) & we thought just like Carbon based (bis oxazoline- transition metal) complex, Silicon based bis oxazolines, complexed with a transition metal compound would make similar catalysts.

We made two types of Silicon based bis oxazoline- transition metal catalysts starting from isopropyl & iso butyl oxazolines. Making the Iso butyl bis oxazoline- Cu (I) complex is far more successful than making the Cu (I) complex with Iso propyl bisoxazolines. We analysed the reaction by altering the reaction path, changing the solvent & purifying the starting materials, in order to make proper Iso propyl bis oxazoline- Cu (I) complex. We Characterized the catalysts made using Nmr (300Hz) & IR techniques. The attempts to make bis oxazoline- Ni (II) complex failed.

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