

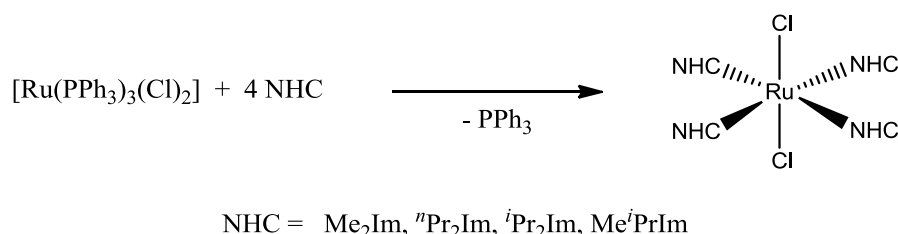
Synthesis, characterization and reactivity of ruthenium NHC compounds

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Ruthenium NHC compounds have attracted much attention in the last decades,^[1] mainly because of the use of NHC-stabilized ruthenium complexes in olefin metathesis reactions.^[2] Typically “Grubbs catalysts” are ruthenium complexes of the type $[\text{Ru}(\text{Cl})_2(\text{L})(\text{L}')(\text{C}\text{HPh})]$. Several investigations revealed that $[\text{Ru}(\text{Cl})_2(\text{PCy}_3)(\text{IMes})(\text{C}\text{HPh})]$ is one of the most efficient metal complex catalysts in olefin metathesis and thus these type of complexes are well explored. Less work has been published concerning homoleptical Ruthenium dichloride NHC complexes of the type $[\text{Ru}(\text{NHC})_4(\text{Cl})_2]$.^[3]

Here we report synthesis, characterization and reactivity of fourfold NHC-coordinated ruthenium(II) complexes. The use of these compounds in activation reactions of small molecules is one of our main interests. In Scheme 1 the general synthesis of these complexes is given.



Scheme 1: Synthesis of homoleptical ruthenium dichloride NHC complexes.

[1] (a) E. Colacino, J. Martinez, F. Lamaty *Coord. Chem. Rev.* **2007**, *251*, 726-764. (b) Y. Schrodi, R. L. Pederson *Aldrichimica Acta* **2007**, *40*, 45-52. [2] (a) G. C. Vougioukalakis, R. H. Grubbs *Chem. Rev.* **2010**, *110*, 1746-1787. (b) L. Vieille-Petit, H. Clavier, A. Linden, S. Blumentritt, S. Nolan, R. Dorta *Organometallics* **2010**, *29*, 775-788. [4] S. Burling, L. J. Haller, E. Mas-Marza, A. Moreno, S. A. MacGregor, M. F. Mahon, P. S. Pregosin, M. K. Whittlesey *Chem. Eur. J.* **2009**, *15*, 10912-10923. [5] R. Wolf, M. Plois, A. Hepp *Eur. J. Inorg. Chem.* **2010**, *6*, 918-925.