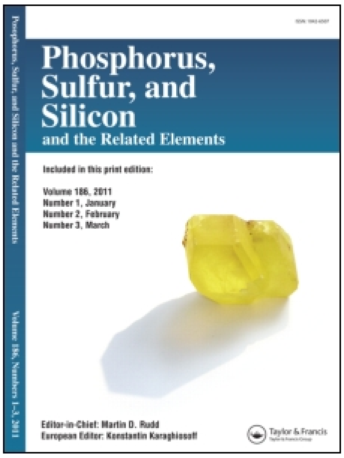


Phosphorus, Sulfur, and Silicon and the Related Elements
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713618290

Organopolysiloxane Phosphines as Supports for New Immobilized Metal Complex Catalysts

Peter Panster[a]; Peter Kleinschmit[a]
[a] Degussa AG, Inorganic Research Division, Hanau, West Germany

To cite this Article Panster, Peter and Kleinschmit, Peter(1987) 'Organopolysiloxane Phosphines as Supports for New Immobilized Metal Complex Catalysts', Phosphorus, Sulfur, and Silicon and the Related Elements, 30: 3, 838

To link to this Article: DOI: 10.1080/03086648708079325

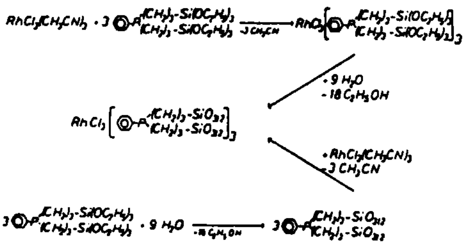
URL: http://dx.doi.org/10.1080/03086648708079325

Organopolysiloxane Phosphines as Supports for New Immobilized Metal Complex Catalysts

Peter Panster[*] and Peter Kleinschmit
DEGUSSA AG, Inorganic Research Division
D-6450 Hanau, West Germany

Immobilized metal complex catalysts represent a new type of catalyst by which the advantages of homogeneous and heterogeneous catalysts should be combined in an ideal manner. The known systems, however, don't fulfill the requirements in particular due to the lack of suitable supports.

According to a newly developed concept special supports were synthesized by polycondensation of trialkoxisilyl-substituted phosphines. Furthermore new immobilized complex catalysts on the basis of these organopolysiloxan-phosphines were prepared. As illustrated for rhodium as a typical example the polymeric complexes can be obtained by two principle procedures:



The synthesis of metal complexes based on organopolysiloxane amines and organopolysiloxane sulfides is also possible in an analogous manner.

The support of these polymeric complexes can be tailor-made to meet certain catalytic requirements e.g. by incorporation of uncoordinated phosphine ligands, crosslinking agents or cocatalysts into the matrix. If necessary the originally formed polymeric metal complexes can chemically further be modified. By a newly developed process the desired physical properties can exactly be adjusted.

Depending on the nature of the metal and the ligand fields of applications of these new immobilized metal complexes are hydroformylation-, carbonylation-, hydrogenation- and hydrosilylation-reactions.