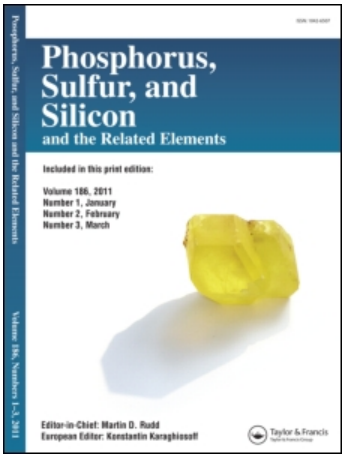


Phosphorus, Sulfur, and Silicon and the Related Elements
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713618290

New Catalysts for the Asymmetric Hydrophosphonylation of Aldehydes[1]

Michael D. Gróning[a]; Bradley J. Rowe[a]; Christopher D. Spilling[a]
[a] Department of Chemistry, University of Missouri-St. Louis, St. Louis, Missouri

To cite this Article Gróning, Michael D. , Rowe, Bradley J. and Spilling, Christopher D.(1999) 'New Catalysts for the Asymmetric Hydrophosphonylation of Aldehydes[1]', Phosphorus, Sulfur, and Silicon and the Related Elements, 147: 1, 389
To link to this Article: DOI: 10.1080/10426509908053674
URL: http://dx.doi.org/10.1080/10426509908053674

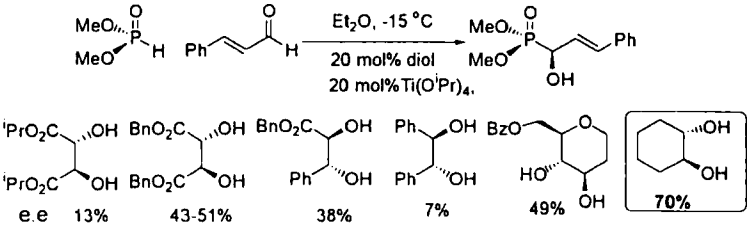
Phosphorus, Sulfur and Silicon, 1999, Vol. 147, pp. 389-389
Reprints available directly from the publisher
Photocopying permitted by license only

New Catalysts for the Asymmetric Hydrophosphonylation of Aldehydes[1]

MICHAEL D. GROANING, BRADLEY J. ROWE and CHRISTOPHER D. SPILLING

Department of Chemistry, University of Missouri-St. Louis, 8001 Natural Bridge Road, St. Louis, Missouri 63121

Chiral α-hydroxyphosphonates are biologically active[2] and are flexible precursors for other α and γ substituted phosphonates.[3] The fact that the biological activity is often dependent on the absolute configuration of the α-position has resulted in a growing interest in methods for the asymmetric synthesis of hydroxyphosphonates.[1] Potentially, the most efficient and economic route to these compounds involves enantioselective catalysis.



A series of homochiral diol ligands were prepared to probe structural requirements for efficient enantioselective catalysis in the phosphonylation of aldehydes. Several ligands were examined, but the titanium complex of cyclohexanediol gave the best enantioselectivity, and was subsequently employed in the reaction of a range of aldehydes giving products with enantiomeric excesses of between 42 and 70%.

References

[1] We are grateful to the National Science Foundation (CHE 9628820) for financial support of this project.
[2] For a recent review see; D.F. Wiemer, *Tetrahedron* **53,** 16609 (1997).
[3] E. Ohler and S. Kotzinger, *Synthesis*497 (1993); H. Shabany and C.D. Spilling, *Tetrahedron Lett.* **39,** 1465 (1998); E. Ohler and S. Kanzler, *Liebigs Ann.* 1437 (1997).