

This article was downloaded by:

On: 28 January 2011

Access details: *Access Details: Free Access*

Publisher *Taylor & Francis*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



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>

Kinetic Resolution of Racemic Ferrocenyl Phosphine Compounds Using Optically Active Cyclic Selenoxides as Oxidant

Yoshihiro Miyake^a; Akiyoshi Yamauchi^a; Yoshiaki Nishibayashi^a; Sakae Uemura^a

^a Kyoto University, Japan

Online publication date: 27 October 2010

To cite this Article Miyake, Yoshihiro , Yamauchi, Akiyoshi , Nishibayashi, Yoshiaki and Uemura, Sakae(2002) 'Kinetic Resolution of Racemic Ferrocenyl Phosphine Compounds Using Optically Active Cyclic Selenoxides as Oxidant', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 177: 8, 2107

To link to this Article: DOI: 10.1080/10426500213347

URL: <http://dx.doi.org/10.1080/10426500213347>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

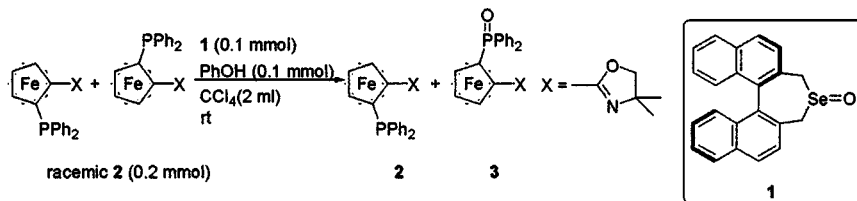
The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

KINETIC RESOLUTION OF RACEMIC FERROCENYL PHOSPHINE COMPOUNDS USING OPTICALLY ACTIVE CYCLIC SELENOXIDES AS OXIDANT

*Yoshihiro Miyake, Akiyoshi Yamauchi, Yoshiaki Nishibayashi,
 and Sakae Uemura
 Kyoto University, Japan*

(Received July 29, 2001; accepted December 25, 2001)

Chiral phosphines and phosphine oxides are useful ligands or reagents in asymmetric synthesis. Organoselenium (IV) compounds such as selenoxides are known to be reagents for oxidation of phosphines to phosphine oxides. This fact prompted us to examine kinetic resolution of racemic phosphine compounds using optically active cyclic selenoxides as oxidant. Treatment of a racemic oxazolinylferrocenylphosphine **2** with optically active selenoxide **1** (0.5 equiv) and phenol (0.5 equiv) in CCl₄ at rt afforded the corresponding phosphine oxide **3** in 52% yield with 13% ee. The unreacted phosphine **2** was also recovered in 48% yield with 29% ee. Although the kinetic resolution proceeded so far with moderate enantioselectivity, this reaction may provide a novel synthetic method for chiral phosphine compounds after further development.



SCHEME 1

Address correspondence to Yoshihiro Miyake, Department of Energy and Hydrocarbon Chemistry, Graduate School of Engineering, Kyoto University, Sakyo-ku, Kyoto 606-8501, Japan.