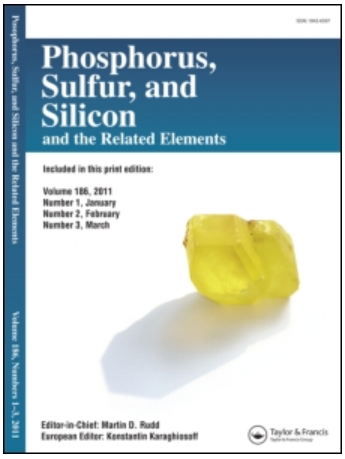


Phosphorus, Sulfur, and Silicon and the Related Elements
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713618290

Novel Synthetic Method of Fluorophosphoranes by Fluoride Ion Abstraction from Tetrafluoroborate

Shohei Sase[a]; Naokazu Kano[a]; Takayuki Kawashima[a]
[a] University of Tokyo, Japan

Online publication date: 27 October 2010

To cite this Article Sase, Shohei , Kano, Naokazu and Kawashima, Takayuki(2002) 'Novel Synthetic Method of Fluorophosphoranes by Fluoride Ion Abstraction from Tetrafluoroborate', Phosphorus, Sulfur, and Silicon and the Related Elements, 177: 8, 2041
To link to this Article: DOI: 10.1080/10426500213375
URL: http://dx.doi.org/10.1080/10426500213375

Phosphorus, Sulfur and Silicon, 2002, Vol. 177:2041

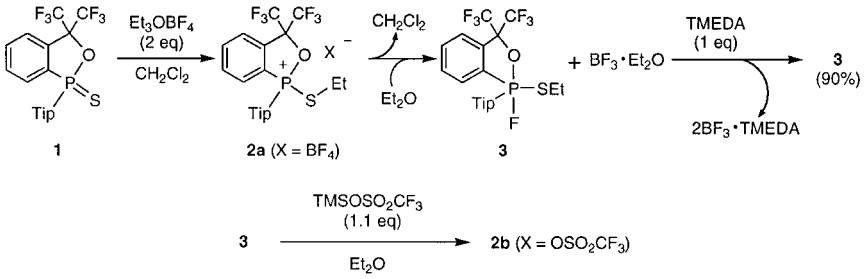
1042-6507/02 $12.00 + .00
DOI: 10.1080/10426500290093883

NOVEL SYNTHETIC METHOD OF FLUOROPHOSPHORANES BY FLUORIDE ION ABSTRACTION FROM TETRAFLUOROBORATE

Shohei Sase, Naokazu Kano, and Takayuki Kawashima
University of Tokyo, Japan

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

Mainly, there has been two typical methods to synthesize fluorophosphoranes: oxidative fluorination of trivalent phosphorous compounds and halogen exchange of halophosphoranes. We now report a novel synthetic method of fluorophosphoranes by fluoride ion abstraction of a phosphonium salt. Reaction of thiophosphinate **1** with triethyloxonium tetrafluoroborate in CH_2Cl_2 at 50°C resulted in formation of phosphonium salt **2a**. After the solvent was exchanged to ether, **2a** was quantitatively converted into (ethylthio)fluorophosphorane **3** by fluoride ion abstraction from its counter anion. Compound **3** was isolated as a colorless crystal after removal of trifluoroborane etherate by addition of TMEDA to the reaction mixture and its structure was determined by x-ray crystallographic analysis. Defluorination of **3** with trimethylsilyl trifloromethansulfonate was easily accomplished to give phosphonium salt **2b**.



SCHEME 1

Address correspondence to Takayuki Kawashima, Department of Chemistry, Graduate School of Science, University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan. E-mail: takayuki@chem.s.u-tokyo.ac.jp