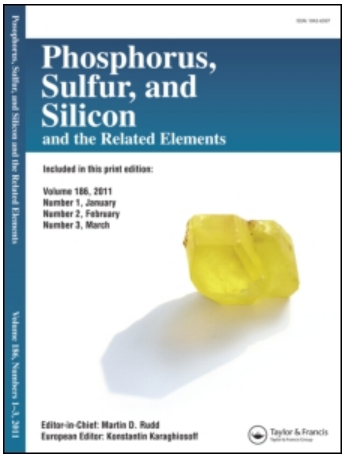

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Synthesis of Carboranylthio- and Carboranylseleno-Ester of Pentavalent Phosphorus Acids

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SYNTHESIS OF CARBORANYLTHIO- AND CARBORANYLSELENO-ESTER OF PENTAVALENT PHOSPHORUS ACIDS

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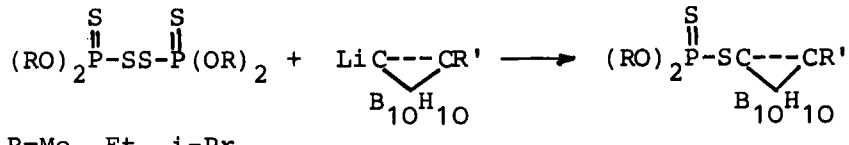
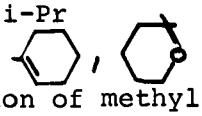
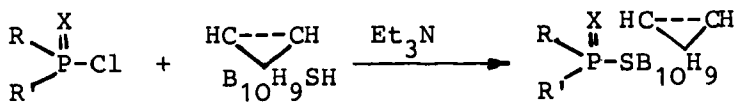
New methods for synthesis of carboranylthio- and carboranylselenoesters of pentavalent phosphorus acids, where the carboranyl group is connected through the carbon or boron atom, have been developed. Through interaction between bis(alkoxythiophosphoryl)disulfides and 1-lithium-2-substituted carborane a series of S-carboranyl dithiophosphates has been prepared.



R=Me, Et, i-Pr

R'=Me, Ph, 

The reaction of methyl phosphonic and diphenyl thiophosphinic acid chlorides with 9-mercaptocarborane in the presence of triethyl amine has given corresponding S-carboran-9-yl esters.

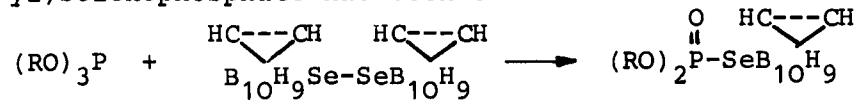


X=O, S

R=Me, Ph

R'=OEt, Ph, $OC_6H_4NO_2$-p

In the reaction of trialkyl phosphite with bis(o-carboran-9-yl)diselenide in toluene O,O-dialkyl-Se-(o-carboran-9-yl)selenophosphate has been obtained.



R=Me, Et