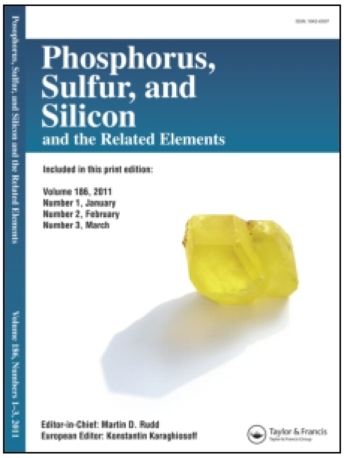

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Complexes of Imidophosphorus Compounds with Boron Trifluoride

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COMPLEXES OF IMIDOPHOSPHORUS COMPOUNDS WITH BORON TRIFLUORIDE

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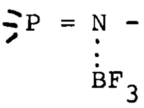
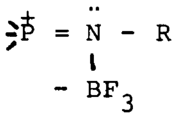
Alkyliminotrialkylphosphoranes form stable complexes with BF_3 which structures have not been studied earlier. It is possible that these complexes are formed at the first stage of imide-amide rearrangement under action of the BF_3 etherate. As the adducts cannot be isolated, we decided to study the stable BF_3 adducts with phenyliminotriphenylphosphorane (1a), p-fluorophenyliminotriphenylphosphorane (1b) and benzyliminotriphenylphosphorane (1c), all being crystalline compounds.
According to IR and ^{31}P NMR spectra iminophosphoranes 1a-1c form the BF_3 complexes of the type A with a significant contribution to the phosphonium structure B.



$$>P=\underset{\substack{\vdots\\ BF_3}}{N}-R$$

(A)



$$>\overset{+}{P}=\underset{\substack{|\\ {}^{-}BF_3}}{\ddot{N}}-R$$

(B)

On the basis of IR spectra of the BF_3 complexes with phosphoryl (or thiophosphoryl)iminotriphenylphosphoranes and triethyl methanesulfonylphosphorimidates it has been found that in all cases the complex formation involves the coordination by P=O, P=S, and SO_2 groups without participation of the phosphinoimine group.