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Complexes of Imidophosphorus Compounds with Boron Trifluoride

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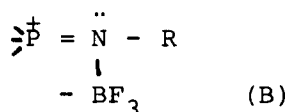
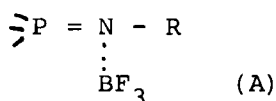
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COMPLEXES OF IMIDOPHOSPHORUS COMPOUNDS WITH BORON TRIFLUORIDE

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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 phenylimino-triphenylphosphorane (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.



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 $\text{P}=\text{O}$, $\text{P}=\text{S}$, and SO_2 groups without participation of the phosphinoimine group.