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## Phosphorus, Sulfur, and Silicon and the Related Elements

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### The Catalytic Methods of Synthesis of the Phosphorus Esters with Tertiary Polyfluoroalkyl Groups

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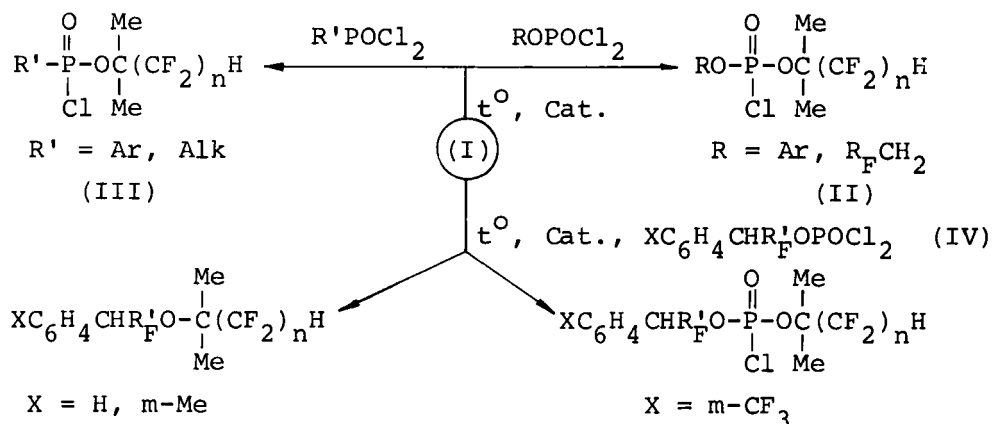
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## THE CATALYTIC METHODS OF SYNTHESIS OF THE PHOSPHORUS ESTERS WITH TERTIARY POLYFLUOROALKYL GROUPS

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The phosphorylation of tertiary alcohols can be performed only in some exceptional cases. We established, that phosphorylation of tertiary fluoroalkanols  $\text{H}(\text{CF}_2)_n\text{CMe}_2\text{OH}$  (I,  $n = 2, 4$ ) with aryl- and polyfluoroalkyl-phosphorodichloridates or aryl- and alkylphosphonic dichlorides in the presence of metal or metal salt catalysts yields chloroanhydrides (II) and (III). When benzyl phosphorochloridates (IV) are used as phosphorylating agents, either products of phosphorylation or products of alkylation are formed depending on the nature of the substituent in the aromatic ring.



The catalytic methods of synthesis of various phosphorus esters with tertiary polyfluoroalkyl groups from chloroanhydrides (II) and (III) were developed.