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Phosphorylation of Dialkylaminomethylated Calix[4]-Resorcinarenes with Some P(III) and P(IV) Derivatives

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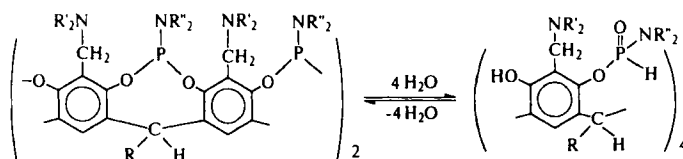
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Phosphorylation of Dialkylaminomethylated Calix[4]-Resorcinarenes with Some P(III) and P(IV) Derivatives

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The phosphorylation of dialkylaminomethylated calix[4]resorcinarenes with P(III)-amides and P(IV)-chlorides under various conditions results in the formation of different structures with phosphorus containing fragments fixed on the cavity rim. Hydrophosphoryl compounds based on dialkylaminomethylated calix[4]resorcinarenes have been synthesized and some of their properties investigated.



It was found that depending on the type of substituent in dialkylamino groups of dialkylaminomethylcalix[4]resorcinarene the hydrophosphoryl derivatives of the latter may undergo two types of transformations: heterocyclization with elimination of 4 molecules of water and formation of phosphor(III)ylated cavitands or heterocyclization into cavitands with cyclic hydrophosphoryl groups and elimination of 4 molecules of dialkylamine. In the absence of HCl acceptors dialkylaminomethylated calix[4]resorcinarenes react with phenyldichlorophosphonate in the 1:2 ratio, while in polar solvents and in the presence of tertiary amines the ratio is 1:4, which brings about the corresponding cyclic phosphoro-containing cavitands. New C-phosphorylated dialkylaminomethyl cavitands have been obtained in the reaction of calix[4]resorcinarenes, α -aminophosphonates, phormaldehyde in the 1:4:4 ratio.