Russian Chemical Reviews 1998 vol.67 N10, pages 857-882

The Kabachnik - Fields reaction: Synthetic potential and the problem of the mechanism

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Abstract

The published data of the last decade concerning the mechanism of the Kabachnik-Fields reaction and its significance for the chemistry of organophosphorus compounds as a method for the synthesis of α-amino phosphonates and their numerous functionally substituted derivatives and analogues, such as phosphinates and phosphine oxides, are generalised and systematised. The review discusses the classical version of the Kabachnik-Fields reaction, its modifications with the use of phosphorus chlorides, neutral esters and inorganic phosphorus acids, as well as chemical processes simulating separate steps of the reaction, viz., hydrophosphorylation of imines and animation of α-hydroxy phosphonates. Data on the practical application of α-amino phosphorates are presented. © 1998 Russian Academy of Sciences and Turpion Ltd.

http://dx.doi.org/10.1070/RC1998v067n10ABEH000421