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Kinetics and Mechanism of the Kabachnik-Fields Reaction: V. Effect of the Nature of the Hydrophosphoryl Compound on the Mechanism of the Kabachnik-Fields Reaction

Galkina I., Galkin V., Cherkasov R.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Replacement of dialkyl hydrogen phosphites by phosphonites and phosphinites affects the rate and mechanism of the Kabachnik-Fields reaction or even changes the mechanism to alternative. The nature of the hydrophosphoryl compound most strongly affects the structure of its prereaction complex with the amine, by endowing the complex with polarization favoring one or the other route, and also the rate of formation and thermodynamic stability of the corresponding hydroxyphosphonates (phosphinates, phosphine oxides) which are key intermediates of one of the possible reaction routes.
