

Recent advances in studying the mechanism of phospho-Michael addition of tertiary phosphines to electron-deficient alkenes on the basis of kinetic isotope effects

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Abstract

© 2018, © 2018 Taylor & Francis Group, LLC. The previously proposed mechanism for phospho-Michael addition of tertiary phosphines to electron-deficient alkenes has been amended according to the secondary kinetic isotope effects provided by α -deuterated activated alkenes. The data obtained have shown that rate-determining protonation of intermediate phosphonium zwitterion proceeds not directly at its carbanionic center but first at a heteroatom of the attached electron-withdrawing group, with subsequent isomerization of the enolic/eniminic intermediate to stable keto-/cyanophosphonium product.

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Keywords

kinetic isotope effects, Kinetics, mechanism, reactive intermediates, vibrational-rotational coupling

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