

Chemo- and Regioselective Cyclohydrocarbonylation of α -Keto Alkynes Catalyzed by a Zwitterionic Rhodium Complex and Triphenyl Phosphite.

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Abstract

α -Keto alkynes react with CO and H₂ in the presence of catalytic quantities of the zwitterionic rhodium complex (η^6 -C₆H₅BPh₃)-Rh+(1,5-COD) and tri-Ph phosphite affording either the 2-, 2(3H)-, or 2(5H)-furanones in 61-93% yields. The cyclohydrocarbonylation is readily accomplished using substrates contg. alkyl, aryl, vinyl, and alkoxy groups at the acetylenic terminal, as well as a variety of primary, secondary, and tertiary alkyl, aryl, and heteroaryl groups connected to the ketone functionality. Structural and electronic properties present in the starting materials mediate the chemo- and regioselectivity of the reaction.