Formation, Nature of Activity, and Hydrogenation Catalysis by Nickel Bis(Acetylacetonate)–Lithium Tetrahydroaluminate Systems

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Abstract—A new approach to synthesis of nickel catalysts under the action of lithium tetrahydroaluminate was proposed which allows preparation of high-performance nanosized catalytic systems with well-reproducible properties. The major stages of formation and the nature of catalytically active species and inhibitors formed in the $Ni(acac)_2$–$LiAlH_4$ system were determined. The catalytic properties of the nickel nanoclusters were studied in relation to the nature and concentration of the proton-containing compounds. Factors responsible for the promoting action exhibited by these compounds were analyzed.

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