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Synthesis of catalysts precursors $[(acac)PdL_2]BF_4$ on the base of $Pd(acac)_2$ and BF_3OEt_2 for transformation of unsaturated hydrocarbons

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Abstract

Complex $Pd_2(phenylacetylene)_2(acac)_3(BF_3)_2BF_4$ was isolated from products of interaction of the components $Pd(acac)_2$ + 1phenylacetylene + $5BF_3OEt_2$. The complex $Pd_2(phenylacetylene)_2(acac)_3(BF_3)_2BF_4$ was used as model of active site for transformation of the unsaturated hydrocarbons on the example of addition polymerization of norbornene. Novel method of synthesis of complexes $[(acac)Pd(PR_3)_2]BF_4$ is proposed on the base of data on interaction of $Pd(acac)_2$ + 2phenylacetylene + $4BF_3OEt_2$, accompanied by formation of complex $[(acac)Pd(phenylacetylene)_2]BF_4$. Tests of the complexes $[(acac)Pd(PR_3)_2]BF_4$ (R = Ph, *p*-Tol, *i*-Pr) in the telomerization of 1,3-butadiene with diethylamine showed their high efficiency.