Matathesis polymerization of norbornene and norbornadiene in the presence of *tert*-butylacetylene initiated by tungsten(II) and molybdenum(II) complexes.

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Streszczenie

Metathesis polymerization of norbornene and norbornadiene in the presence of *tert*-butylacetylene initiated by seven-coordinate bimetallic tungsten–tin and molybdenum–tin compounds of the $[MCl(SnCl_3)(CO)_3(NCMe)_2]$ (M = Mo, W) type was investigated. The presence of alkyne in the reaction mixture leads to an increase in cycloolefin conversion and to the formation of blocky polymers with high molecular weights and better solubility in $CHCl_3$ than polynorbornene and polynorbornadiene homopolymers. The structure of polymers was determined by ^{1}H and $^{13}C\{^{1}H\}$ NMR spectroscopy. In addition to polymers small amounts of cooligomers and cyclotrimers were also detected in the above reactions. The reactivity of tungsten(II) and molybdenum(II) complexes towards *tert*-butylacetylene is higher than towards olefins. Monitoring of reactions of $[WCl(SnCl_3)(CO)_3(NCEt)_2]$ with norbornadiene and *tert*-butylacetylene by ^{1}H NMR spectroscopy made it possible to observe the coordination of alkyne to the metal atom in the step preceding polymerization and copolymerization. In those reactions the alkyne plays the role of an activator.

Słowa kluczowe

Metathesis polymerization, Tert-butylacetylene, Cycloolefins, Tungsten(II) catalyst, Molybdenum(II) catalyst

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