

Catalytic polymerization of phenylacetylene with dimeric $[\text{Rh}(\text{OMe})(\text{cod})]_2$ complex in ionic liquids.

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Rok wydania

2006

Czasopismo

Applied Organometallic
Chemistry

Numer woluminu

20

Strony

766-770

DOI

10.1002/aoc.1138

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

Dimeric rhodium(I) complex $[\text{Rh}(\text{OMe})(\text{cod})]_2$ was found to be an active catalyst of phenylacetylene polymerization to poly(phenylacetylene) (PPA) in ionic liquids containing imidazolium or pyridinium cations. The highest yield of PPA (92%) was obtained in 1-butyl-4-methylpyridinium tetrafluoroborate as reaction medium. The yield of PPA in imidazolium ionic liquids containing BF_4^- or PF_6^- anions increased to 83–99% when Et_3N or cycloocta-1,5-diene were added as co-catalysts. In 1-methyl-3-octylimidazolium chloride ($\text{MOI} \cdot \text{Cl}$) polymerization rate was much lower than in other ionic liquids, although the highest M_w (72 400) was obtained. Spectroscopic studies confirmed that $[\text{Rh}(\text{OMe})(\text{cod})]_2$ reacted with $\text{MOI} \cdot \text{Cl}$ forming new carbene $\text{Rh}(\text{I})$ complex, which can participate in the polymerization process.

Adres publiczny

<https://doi.org/10.1002/aoc.1138>

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