

Abstract

Transformation of mono- and diethynylarenes performed by chain polymerization, cyclotrimerization and polycyclotrimerization was studied with the use of a series of mononuclear complexes of Rh and Ir of the [Mt(diene)acac] type. It was confirmed that Rh complexes with cyclo diene ligands provided high-cis high-molecular-weight polyacetylenes in high yields. For the complex [Rh(ethylene)₂acac] the satisfactory cyclotrimerization activity was found (cyclotrimerization selectivity 60-80 %, yield of cyclotrimeres 50-80 %). Products of the type of insoluble conjugated polymer network with phenylene links were obtained if Rh complexes were applied as catalysts of transformation of diethynylbenzenes. The solubility of these products was possible to be enhanced by incorporation of monomeric units derived from a monofunctional monomer.