Insights: Publications

Oligomerization and polymerization of 5-ethylidene-2-norbornene by cationic palladium and nickel catalysts

Polymer Chemistry,11, 2516

MARCH 16, 2020 Written by Alexandra H. Farquhar, Ph.D.

Nickel- and palladium-based catalyst systems were developed to convert 5-ethylidene-2-norbornene (ENB) to oligomers and polymers with highly controllable molecular weights. Depending on the choice of central metal ion, supporting ligand, and α-olefin chain transfer agent (CTA), ENB-derived materials ranging from dimers (ca. 270 Da) to high molecular weight polymers (>100 000 Da) were prepared. Typical reactions utilized [(η6-mesitylene)M(η3-2-R-allyl)]+ (M = Pd, R = H; M = Ni, R = Me) in dichloromethane solution at ambient temperature, with tertiary phosphine co-ligands and α-olefins controlling the enchainment. Access to oligomers of cycloolefins with Mn < 2000 Da is noteworthy, particularly considering that ENB is much less reactive than norbornene itself.

Related People



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