

Nanocatalyst-Controlled Antifouling Polymer Synthesis Using CO

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The conversion of C1 feedstocks, including CO, to useful chemicals has attracted significant attention due to its green credentials and the economic impact from producing high value-chemical products. In particular, polyketones are derived from CO and olefins, and research on the commercially valuable polyketone synthesis would meet the goal of C1-utilization projects. Reactor fouling is the main issue obstructing the mass-scale production of polyketones. To resolve this issue, we have investigated heterogeneous and homogeneous catalytic systems, which should be used for the large-scale production of antifouling polyketones. This work illustrates the process of forming Pd(II) nanosalts in the presence of various heterogeneous/homogeneous acid additives and their breakthrough use as a catalyst for the synthesis of antifouling polyketones from CO. Besides the role of catalysts to prevent reactor fouling during polymerization, improved catalytic activities of our system will be also discussed.