

A heterogeneous catalyst of metal-organic framework applied for bio-polymer synthesis

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Nowadays, polymeric or polymer material has wildly used in place of other materials as glass, wood, or metals etc., due to their beneficial properties which can design from source (monomer) and synthesis or treatment procedure. However, mostly monomer source for polymeric materials were produced from crude oil, which currently have been limited exploration and resulted to upper price of monomer source to product polymeric material. Including, a trouble in waste management of polymer products which take long lifetime for degradation in natural, that are reflecting back as environment problem. Biodegradable polymeric materials such as polylactides (PLAs), have attractive in research to replace synthetic polymeric material in academic and also industrial view point. However, the polymer prepared with homogeneous catalysts may contain some impurities such as metal residues, which have adverse effects on their quality and limit their practical applications. It has been considered that employing highly active heterogeneous catalysts is an effective method, because they could be separated from the resulting polymer easily. Metal-organic frameworks (MOFs) have been widely used in drug delivery, gas

adsorption/separation and catalysis etc., owing to their outstanding properties such as high surface area, tunable porosity and structural diversity and so on. The varieties in metal clusters and unsaturated coordination linkers of MOFs offer acidic-basic properties, which could catalyze a wide range of organic reactions. Nevertheless, compared with organic reactions, the applications of MOFs in heterogeneous polymerization catalysis are rarely reported, particularly very few reports, moreover, early reported by our group involving to applied MOFs/ZIFs as catalysts for the ROP of LA.

Biography

Dr. Somboon Chaemchuen (1984, Thailand) received his PhD in Chemical Engineering from Chulalongkorn University, Thailand, in 2011. In 2010, he went to Aachen University, Germany, for research collaboration. He has recently obtained as associate professor position in the group of Prof. Francis Verpoort at the State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology. His current research interests are the preparation of metal-organic framework (MOF) compounds and the study of their applications. He have published more than 40 articles in SCI index.

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