

Control of compartment in Janus microcylinder particles using micromolding technique

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Janus microparticles have different chemical properties, such as hydrophobicity and hydrophilicity, and have unique morphology are widely utilized in self-assembly, molecular simulation, and Pickering emulsion. In this study, we fabricate Janus microparticles with different size and cylindrical morphology.

We fabricate Janus microcylinders by using simple micromolding technique. Micromolding technique proceeds in sequential loading of two different photocurable solutions and photopolymerization. Firstly, the solution containing a hydrophobic monomer, a volatile solvent and photoinitiator is loaded on the mold. And then, evaporation of the solvent in the mold is followed by pre-photopolymerization of the monomer. Secondly, the solution just containing a hydrophilic monomer, photoinitiator is loaded on the mold. Loading of the solution is followed by full photopolymerization. And, we synthesize Janus microcylinders with different sizes by controlling mold geometry.

Finally, we easily fabricated Janus microcylinders with different sizes by simple micromolding technique, and we expect that they are useful in many fields.