

Fabrication of multicompartment particles with cylinder shape using sequential micromolding technique

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Multicompartment particles are becoming increasingly important technical issues in several research areas. These multicompartment particles are widely used as drug storage, delivery supporters, and biosensors. But, previous methods for the fabrication of multicompartment particles have limitation such as 2-D particles, complicated flow control and difficult shape control. Herein, we introduce the method of sequential micromolding technique composed of injection of photocurable solution, evaporation of volatile solvent, and photo-polymerization. Depending on the repetition of the sequential micromolding process, the number of compartment of the multicompartment particles can be controlled. Based on this principle, we can fabricate multicompartment particles with cylinder shape. Furthermore, we demonstrate the possibility of application for barcode particles embedding fluorescent dyes at each compartment. So, we anticipate that these fabricated multicompartment particles can play critical roles in systems for decoding of encoding particles.