

Synthesis of Uniform Micrometer-scale Hollow Particles in Microfluidic Devices and Its Potential Applications

김재한, 최원춘, 김희영, 강 용¹, 박용기*
한국화학연구원; ¹충남대학교
(ykpark@kriect.re.kr*)

We report on the synthesis of micro hollow spheres using a micro fluidic device, which was fabricated by inserting capillary tube in a millimeter scale glass tube. The as-synthesized micro particles showed a narrow size distribution and the average size was controlled by varying capillary tip diameter and the fluid velocity of capillary and glass tubes. And also, the shell thickness was increased by increasing precursor concentration of inner capillary fluid. The production rate of the micro particles was increased by inserting three capillary tips in a glass tube, maintaining the narrow size distribution. The low Reynolds number in the flow of our device leads to laminar flow, allowing the production of well-controlled micro hollow particles having narrow distribution.