

Development of a procedure for spherical alginate–boehmite particle preparation

Abstract

Herein we describe a versatile new strategy for producing spherical solid particles with 2 mm in size using integrated gelling process. The method involves the formation of spherical droplets by using a peristaltic pump device and shaping the droplets in a liquid calcium chloride solution. The shape and size of these calcium alginate macroparticles depend strongly on the calcium solution concentration. The shaping mechanism of the macroparticles and the impact of the experimental conditions on particle shape and size are investigated. This method has the following features: (1) A new level of control over the shapes of the particles is offered. (2) The procedure can be scaled up to produce large numbers of particles. (3) The final porous structure of the developed particle can be designed for a specific application (adsorption, catalysis).