

Bead-Shaped Porous Oxide Particle for Environmental Applications

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ABSTRACT

Powder-typed materials are generally used in a variety of applications due to their advantageous properties such as high surface area, high dispersion and favorable diffusion of molecules. However, when used in a practical continuous flow process, it causes many problems such as loss of materials, pressure drop, and difficulty of recovery and recyclability. To overcome the drawbacks, the powder-typed materials should be processed to shaped particles such as pellet and bead. The shaped ones can be easily separated, recovered and recycled.

We successfully synthesized various bead-shaped porous particles including silica, titania, alumina, ceria-alumina, carbon etc. The bead-shaped porous oxide particles showed uniform particle size in diameter range of 1 ~ 5 mm with well-developed porosity. The physical properties such as particle size and porosity are feasibly tuned by changing synthetic parameters. In this presentation, we report our recently progress on synthesis of Bead-Shaped Porous Oxide materials with tunable property for environmental applications.

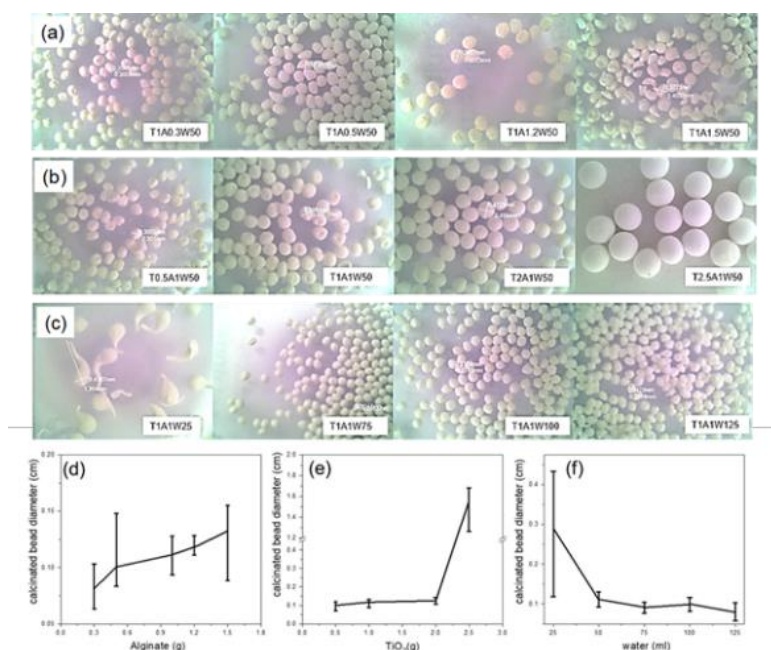


Fig. 1. Particle dimension control of bead shaped TiO₂ by changing (a, d) the amount of alginate (b, e) the amount of TiO₂ and (c, f) the amount of water