



Synthesis of hollow vaterite CaCO₃ microspheres in supercritical carbon dioxide medium

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Résumé en anglais	<p>We here describe a rapid method for synthesizing hollow core, porous crystalline calcium carbonate microspheres composed of vaterite using supercritical carbon dioxide in aqueous media, without surfactants. We show that the reaction in alkaline media rapidly conducts to the formation of microspheres with an average diameter of 5 μ m. SEM, TEM and AFM observations reveal that the microspheres have a hollow core of around 0.7 μ m width and are composed of nanograins with an average diameter of 40 nm. These nanograins are responsible for the high specific surface area of 16 m² g⁻¹ deduced from nitrogen absorption/desorption isotherms, which moreover confers an important porosity to the microspheres. We believe this work may pave the way for the elaboration of a biomaterial with a large potential for therapeutic as well as diagnostic applications.</p>
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