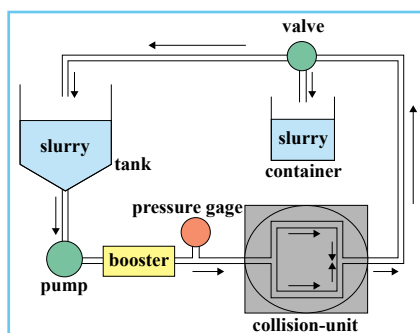
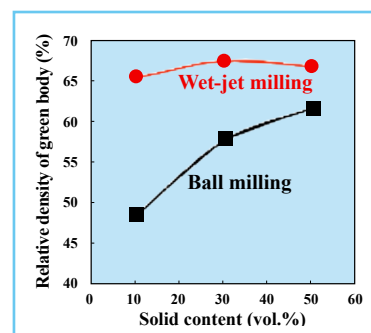


Fabrication of stable ceramic slurries to produce green high-density bodies

We studied a wet-jet milling process as a novel method to prepare stable ceramic slurries because properties of slurry have an influence on the manufacturing cost, the material characteristics and the reliability of products. The wet-jet milled slurries showed low viscosity and were stable for a long time. The slurry could produce green high-density bodies regardless of the slurry solid content as well as sintered compacts with low shrinkage. Our process can contribute strongly to the reliability improvement in the ceramic material and the components.



A wet-jet milling process



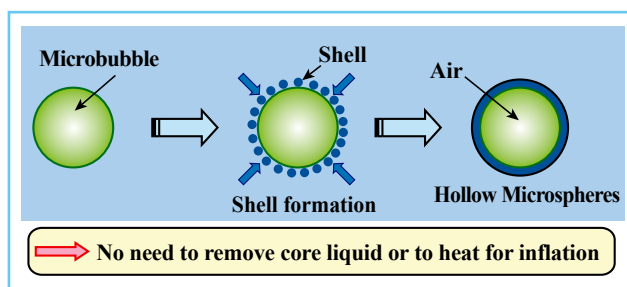
Relative density of green Al_2O_3 bodies as a function of slurry content. The primary particle size of Al_2O_3 particle is 570 nm.

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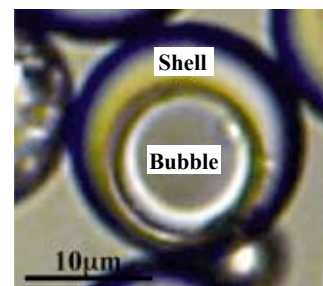
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Simple fabrication of hollow microspheres using microbubbles as templates

A simple method was developed that uses microbubbles generated in liquid phase as templates to fabricate hollow microcapsules ranging 1 to several 100 μm in diameter covered with a polymer shell. In this method, we adapted a polymerization reaction or a solvent evaporation method that is a phase separation method commonly used to fabricate microspheres including core liquid. Because the microcapsules can be covered with a biodegradable polymer, they are expected to be used as ultrasonic contrast agents in medical applications.



Fabrication process of hollow microspheres using microbubbles as templates



Hollow microcapsules covered with a biodegradable polymer

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