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## High-porosity mullite ceramic foams prepared by selective laser sintering using fly ash hollow spheres as raw materials

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### Abstract

A novel method to prepare high-porosity mullite ceramic foams by selective laser sintering (SLS) using fly ash hollow spheres (FAHSs) as raw materials was reported. The complex-shaped FAHS green bodies and ceramic foams without delamination or cracks were prepared by SLS. The influence of sintering temperatures on linear shrinkage, phase composition, porosity and mechanical properties was investigated. With the increase of sintering temperature from 1250°C to 1400°C, the compressive strength of ceramic foams increased from 0.2 MPa to 6.7 MPa causing the fracture mechanism change from fracturing along FAHSs to across FAHSs, while the porosity of ceramic foams decreased from 88.7% to 79.9% which was higher than those of

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