

Low temperature fabrication of SiC ceramics using wood

SiC biocast ceramics with a structure composed mainly of carbon fabricated at low temperature for a short time

Summary

Ceramics made from natural woody materials (biocast ceramics) are a renewable resource with reduced CO₂ emissions, low cost, high anisotropy that cannot be produced artificially, and have excellent properties such as porosity and light weight. The conventional method for fabricating SiC needs the carbonized wood to be immersed in molten Si at a high temperature of 1410°C or higher, or in a solution containing Si, followed by carbonization reduction process by high temperature heat treatment. However, these methods require high temperature energy and the cost is high.

This invention is able to provide SiC biocast ceramics with a plant cell structure composed mainly of carbon which is synthesized at low temperatures of 600-900°C in a short time.

Application

High-temperature gas or metal melt filter, high-temperature gas adsorbent

Catalyst carrier, semiconductor manufacturing device components, bio-culture support material, etc.

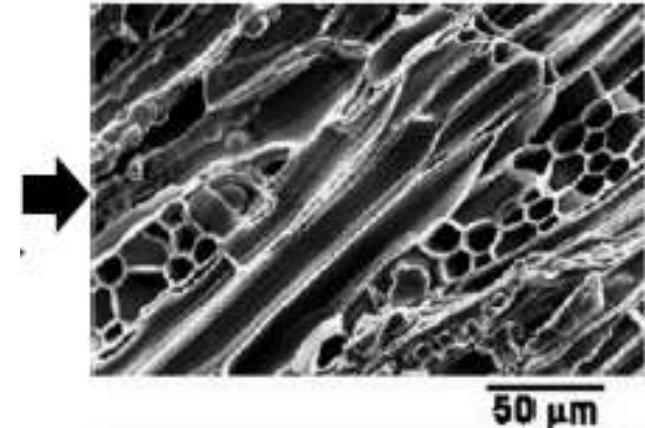
Patent Data Sheet

Patent request number (Serial number):

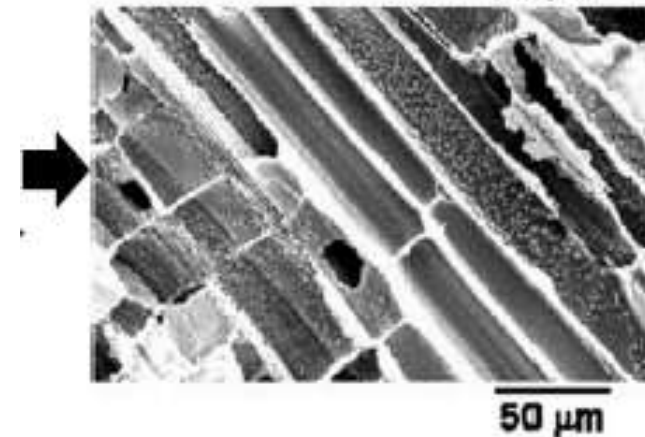
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Sample obtained from the carbonized cypress wood



Sample obtained from the carbonized balsa wood



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