

عنوان مقاله:

Self-Propagating High-Temperature Synthesis of Porous Molybdenum Disilicide Composites

محل انتشار:

اولین کنفرانس بین المللی مواد پیشرفته (سال: 1391)

تعداد صفحات اصل مقاله: 5

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خلاصه مقاله:

Microwave processing combined with combustion synthesis was used to fabricate intermetallic composite foam. Internal microwave heating initiated ignition at center of the sample and combustion wave front propagated radially outwards. Open-cell porous MoSi₂ intermetallics with adjustable pore characteristics were successfully produced from MoO₃, SiO₂, Mg and C raw materials. Manipulating volume fraction and particle size of the utilized carbon, porosity and pore size of MoSi₂ intermetallics were easily controlled. Their values were in the ranges of 18-56% and 0.4-2.0 mm, respectively. From thermodynamic analyses of MoO₃-xMg-yC system, optimal ranges of x and y coefficients were so found to ensure complete reduction of MoO₃ to metallic molybdenum. The influence of x and y values on the process parameters like temperature, front propagation velocity, phase composition and the structure of products were experimentally investigated

کلمات کلیدی:

Metal Foam; Composite materials; SHS process; Molybdenum Disilicide

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