

Unconventional Method of Preparation Intermetallic Phases Fe-Al by Mechanical Alloying in Comparison to Reactive Sintering

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Intermetallic phases Fe-Al appears to be a suitable material for industrial use at high temperatures. Due to their characteristic properties, such as high melting point, low toughness at room temperatures and inconvenient casting properties, it is required to explore the other possibilities for their production, especially the technology of powder metallurgy. Recently, the possibility of the preparation of these materials from powder iron and aluminium by reactive sintering technology was studied. Another way of preparation seems to be mechanical alloying and subsequent compaction by SPS. The aim of this study was to describe the mechanism of Fe-Al intermetallic phases during mechanical alloying and optimization of the process parameters. The results of this research were compared with the results of the previous description of the reactive sintering in this system.

Keywords: Fe-Al intermetallic phases, mechanical alloying, spark plasma sintering

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