

Role of Reactive Sintering in Production of Technically Important Intermetallics

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Intermetallics offer many interesting properties, such as excellent resistance against high-temperature oxidation and creep, special magnetic properties, shape memory or the ability of reversible hydrogen storage. For these reasons, intermetallics are considered as very promising materials for many modern applications in power generation, automotive or aerospace industry and also in the medicine. The factors limiting their wider use are low room-temperature toughness and problems with their production. In this work, the possibilities of the use of powder metallurgy using reactive sintering for the production of intermetallics for medicine (Ni-Ti alloys) and for high-temperature applications (aluminides, silicides) are presented. The effect of process parameters on the proceeding reactions and structure of obtained materials is discussed.

Keywords: powder metallurgy, reactive sintering, intermetallics

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