Structural Description of Powder Metallurgy Prepared Materials

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The compaction of powder metals and alloys is very difficult field due to preserving of unique properties of initial materials. One of few possible method of succesful compaction is plasma sintering. To describe detailed structure os powder metallurgy materials, it is necesary to use advanced microscopy methods such as SEM and TEM. In this study, the structure of NiAl intermetallic compaoud is described. The material was at first produce by reactive sintering from pure elements. Subsequently, the NiAl porous master alloy was milled and compacted by spark plasma sintering (SPS) technique.The particle size of NiAl powder was compareable to the grain size of compact material, which exhibited low porosity. It was proven that the interconnection on NiAl particles is performed by thin layer of nanocrystalline oxides.

Keywords: SPS, intermetallics, powder metallurgy

Acknowledgement

This research was financially supported by Czech Science Foundation, project No. P108/12/G043.

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Paper number: M201465