Compacting of Aluminium Alloys Prepared by Melt Spinning Method

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Aluminium alloys prepared by rapid solidification (RS) are characterized by very fine microstructure, increased hardness and thermal stability, which determine these alloys to be used especially in an automotive or aerospace industry. However, there is no practical use for rapidly solidified alloys in the form of thin ribbons and further processing of the material is necessary. Compacting of rapidly solidified alloys can be realized by hot extrusion or hot pressing. The aim of this work was to prepare a metallic powder from RS alloys by cryogenic milling and to compact the powder into a bulk material by hot pressing. Both microstructure and phase composition of hot pressed products were studied and compared. Alloys of chemical composition Al-Fe-X, where X means transition metal Cr or Ni, were studied.

Keywords: rapid solidification, aluminium alloys, hot pressing, microstructure, transition metals

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