Possibility of affecting the casting structure of magnesium alloys

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Magnesium alloys belong to materials, which are nowadays more and more often used for various technical applications. Their principal advantage consists in their low specific mass and high specific strength, while their drawbacks consist, among other, namely in low mechanical properties at higher temperatures. Obtaining of fine grained structure can be achieved by high cooling effect of the mould. This can be ensured by use of metallic mould, especially in combination for example with die casting, or with low-pressure casting or gravity casting. Some other casting procedures exist, however, such as casting into expendable moulds, the cooling effect of which is substantially weaker. In these cases it is necessary to achieve the fine grained structure in another way. In this case an important role can be played by inoculation of material, i.e. addition of suitable nuclei. This paper deals with the influence of the inoculation on microstructure and thermo-mechanical properties of castings based on selected magnesium alloys.

Keywords: magnesium alloys, thermo-mechanical properties, microstructure, inoculation

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