

Comparison of the Structure of CuZn40MnAl Alloy Casted into Sand and Metal Moulds

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CuZn brasses are used for manufacturing highly stressed structural components. Their mechanical properties as e.g. strength, toughness or wear resistance are affected not only by their chemical composition, but also by their structure. This paper is dedicated to the study and comparison of the structure of sand- and metal mould casted Cu40Zn alloy. Scanning electron microscopy supplied by energy dispersive spectroscopy and electron backscatter diffraction were used to evaluate the structure of both samples. Casting into the metal mould produces approximately five times finer grain structure compared to the sand mould. EBSD orientation mapping revealed a strong correlation between both matrix phases, α Cu and β' phase. Also, the size of Fe₂MnSi ternary precipitates is affected by the cooling rate.

Keywords: Brass, Structure, Casting, EBSD

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