

GRAIN REFINEMENT IN MAGNESIUM ALLOYS PROCESSED BY SEVERE PLASTIC DEFORMATION

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Abstract

Conventional thermo-mechanical processing of magnesium alloys can produce grain sizes in the range between a few microns to tens of microns. However, modern metal processing techniques of severe plastic deformation (SPD) such as equal-channel angular pressing (ECAP) and high pressure torsion (HPT) are able to refine the grain structure of metallic materials, including magnesium alloys, to the sub-micron range. This paper examines the use of SPD techniques to refine the grain structure of magnesium alloys and the effect of grain refinement on the mechanical properties.

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