

## عنوان مقاله:

Constitutive Behavior of AZ31 Magnesium Tube Processed by Severe Plastic Deformation

## محل انتشار:

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## خلاصه مقاله:

In this study, the evolution of parallel tubular channel angular pressing (PTCAP) as a severe plastic deformation process on the hot deformation behavior of the extruded AZ31 magnesium tube was investigated. After four passes, a more refined and homogeneous microstructure was achieved. To understand constitutive behavior, hot tensile tests were carried out on four passes of specimens at temperatures of 350, 400, and 450°C with strain rates of 0.0001, 0.001, and 0.01 s<sup>-1</sup>. The dependence of flow stress on strain rate and temperature was investigated by the Zener-Hollomon equation and the activation energy was found to be around 131.26 kJ/mol. Effect of strain was included in the constitutive equation by applying material constants. Based on the constitutive model, the stress-strain curves of PTCAP processed tubes were extracted and compared with the experimental curves. The results indicate good agreement between experimental and predicted flow curves by considering the softening effect.

## کلمات کلیدی:

AZ31 magnesium alloy, severe plastic deformation, constitutive equation, activation energy, PTCAP

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1491911>

