

## عنوان مقاله:

Determining flow stress of AZ21 magnesium alloy using ring test

## محل انتشار:

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## خلاصه مقاله:

One of the ways for determining of flow curves is the application of a ring test. By using this method, friction in the interface between the die and the specimen leads to a bulging of the sample and thereby to an inhomogeneous stress and strain state. The calculation of the flow stress from experimentally determined force–displacement curves implies a uniaxial stress state, but this will produce an error because of the above mentioned bulging, when friction occurs. The method of avoiding these sources of errors is to use the sigmoid curves, but the sigmoid curves are varied by the variation of temperature and strain rate. The calculation of numerical sigmoid curves done by the use of an iterative procedure, applying a corrected sigmoid curve. This paper presents a complete investigation of the AZ21 magnesium alloy sigmoid curves at temperature range between 473 K and 513 K and strain rates range between 0.025 s<sup>-1</sup> and 0.00025 s<sup>-1</sup>. Ring tests were used to determine the numerical sigmoid curves sensitivity to temperature and strain rate. Furthermore, this paper presents a complete characterisation of the AZ31 magnesium alloy flow curve at temperature ranging between 473 K and 513 K. Ring tests are utilised to determine the flow curve sensitivity to temperature and strain rate, and numerical correction factor was employed to reduce errors

## کلمات کلیدی:

Ring test, Numerical, sigmoid, Flow curve, Magnesium alloy

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/924741>

