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Abstract

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Formability of two magnesium alloys, namely, AZ80 and ZE10, has been investigated. Both alloys were supplied with a thickness of 0.8 mm. The grain structure of the as-received AZ80 alloy showed dislocations, twins and second-phase particles and/or precipitates distributed uniformly within grains. These were not obvious on the ZE10 alloy. The investigations were carried out at room temperature for both alloys in the as-received and heat treated conditions (410°C for 1 hour followed by water quench). The heat treatment significantly changed the grain structure of the AZ80 alloy, but did not affect the ZE10 alloy apart from grain enlargement. The formability was studied on the basis of plastic strain ratio (r) and strain hardening coefficient (n) by means of tensile testing. In the as-received condition, the ZE10 alloy had a slightly better formability (r) than AZ80 alloy. Following heat treatment, however, the formability of the AZ80 alloy was improved significantly (by about 26%), while the ZE10 alloy did not show any significant change.

