Compressive Flow Behavior of AZ61 Mg Alloy at Elevated Temperatures

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Abstract

The flow behavior and associated structural changes of an AZ61 Mg alloy were analyzed by using hot compression tests in the temperature and strain rate ranges of 250–400 °C and 0.001 to 1 s−1, respectively. The stress–strain curves exhibited the trend typical of materials in which deformation is recovery-controlled in the high Z regime (Z is the Zener–Hollomon parameter), while at low strain rates and high T, the flow curves exhibited a softening typical of recrystallization phenomena. Microstructure analysis has been performed to correlate the microstructure changes to the flow behaviors.

Keyword：AZ61 Mg alloy, Bimodal grain structure, Dynamic recovery, Dynamic recrystallization, Flow behavior.