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Hot deformation behaviors and processing maps of Al–Mg–In alloy

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ABSTRACT

Gleeble-3500 was used to do the isothermal compression experiments of Al–Mg–In alloy. The effects of the deformation temperature and strain rate on the flow/plane stress and microstructure were studied. The processing map for the hot deformation of the Al–Mg–In alloy was established. The instability region is characteristic of local flow, and the safe region is characteristic of dynamic recrystallization. The safe domain in the processing map is the optimum processing area, and the optimized deformation temperature and strain rate for the alloy are 340–450°C and 0.01–0.1 s^{-1}, respectively.

KEYWORDS: Al–Mg–In alloy, hot compression deformation, dynamic recrystallization, processing map