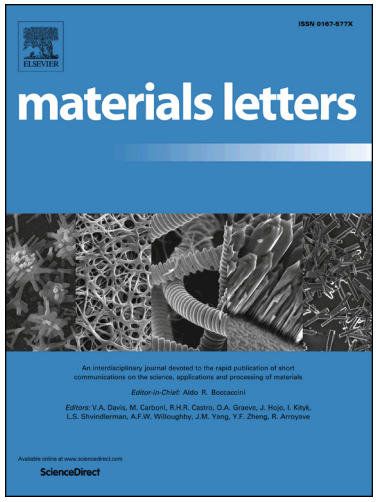

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Elevated temperature compressive behavior of a beryllium-aluminum casting alloy

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ABSTRACT

The performance of elevated temperature compressive deformation of the beryllium-aluminum casting alloy was investigated in the temperature range of 450-660 ℃ and strain rate 0.1-50 s^{-1}. The temperature mainly affects the load bearing ability and flowability of aluminum and thus the compatible plastic deformation of the alloy, while the strain rate mainly affects the work hardening effect and peak stresses. The deformation mechanism was discussed by combining analysis of the stress-strain curves and microstructures. The constitutive equation relating flow stress, strain rate, and deformation temperature of the alloy is established.

Keywords: Metallic composites; Microstructure; Beryllium-aluminum alloy; Compression

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