

Abstract TMS meeting Columbus
For Poster session

Effects of Devitrification on Mechanical Properties of Al₈₇Ni₇Gd₆

P. Wesseling, B.C. Ko, J.B. Caris, L.O. Vatamanu, J.J. Lewandowski, Case Western Reserve University, Department of Materials Science and Engineering, Cleveland, Ohio

Amorphous Al₈₇Ni₇Gd₆ devitrifies at low temperatures via the precipitation of nano-crystalline α -Al particles. The formation of these particles is quantified. The effects of different degrees of devitrification on the mechanical properties are obtained. Vickers micro-hardness indentations were conducted on the ribbons. Not only hardness measurements were obtained, but also SEM and AFM analyses were conducted on these indentations to examine the change in deformation structure with change in amount of devitrification. Uniaxial tension tests were also conducted on these specimens. The tension data was analyzed; the specimen fracture surfaces were analyzed using SEM, and the shear band formation on specimen surfaces away from the fracture were analyzed using SEM and AFM. Work supported by DARPA SAM Program through Boeing Company with supply of materials by G. Shiflet.

TMS Technical Programming Department

184 Thorn Hill Road

Warrendale, PA 15086

Phone: (724) 776-9042