

## Texture Development in Ni and Ni Alloy Tapes Fabricated from the Sintered Mother Billets

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### Abstract

Mother billets for the fabrication of Ni and Ni alloy tapes were prepared by power sintering process. The alloying elements of W, Cu were selected because of their mutual solubility with base metal Ni. The formation of the solid solution was identified by neutron diffraction method. It was found that the lattice parameters of the sintered alloy rods increased linearly with increasing the alloying contents and no additional peaks except the Ni peaks were observed, which indicated the formation of the complete solid solution of the elements with Ni. It was also found that the mechanical strength was improved by addition of the alloying elements due to the solid solution hardening. The sintered rods were cold-rolled and made into tapes with a thickness of 80-100 microns. The cold-rolled tapes were annealed in a reduced atmosphere in order to develop the cube texture. The texture of the tapes were analyzed by a XRD diffraction, XRD pole figure and EBSD microscopy. The details of the texture development and microstructure will be reported in this article.