

Using Mechanical Alloying for Verification of Predicted Glass Forming Composition Range

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Abstract : Aim of this work was to determine the approximate glass forming composition range of Ni-Sn system for the alloys produced by mechanical alloying. It was predicted by Miedema semi-empirical model that the composition had to be in the range of 30-60 wt. % tin, while Ni-40Sn had the most susceptibility to produce amorphous alloy. In the next stage, some different compositions of Ni-Sn were mechanically alloyed, where one of them had the proper predicted composition. Products were characterized by XRD analysis. There was a good agreement between calculation and experiments, in which Ni-40Sn alloy had the most amorphization degree.

Keywords : Ni-Sn system, mechanical alloying, Amorphous alloy, Miedema model

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