

PHASE ANALYSIS OF MECHANICAL ALLOYED Ni-Ti POWDER COMPACTS AFTER SINTERING

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Abstract: Ni-Ti binary phase diagram has different intermetallic compounds. NiTi is the one of them having commercial importance because of its shape memory and superelastic characteristics. In this study, effect of mechanical alloying on the phase transformations of Ni-Ti powder compacts during sintering was studied. For this purpose 35Ni-65Ti, 45Ni-55Ti, 50Ni-50Ti, 55Ni-45Ti and 75Ni-25Ti compositions were selected as starting compositions and mechanical alloying was performed against milling time. Mechanical alloyed powders were compacted and sintered under control atmosphere. XRD phase analysis, was used for the characterization of sintered compacts. Both Ni/Ti ratio and mechanical alloying time were found effective parameters for the formation of new phases during sintering.

Keywords: NiTi, SHAPE MEMORY ALLOYS, MECHANICAL ALLOYING, SINTERING